FIG. 1

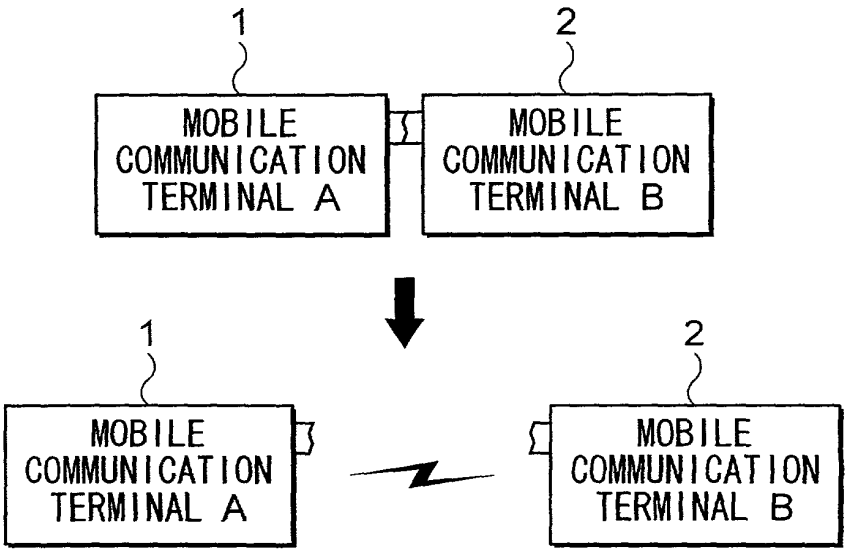


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FIG. 2

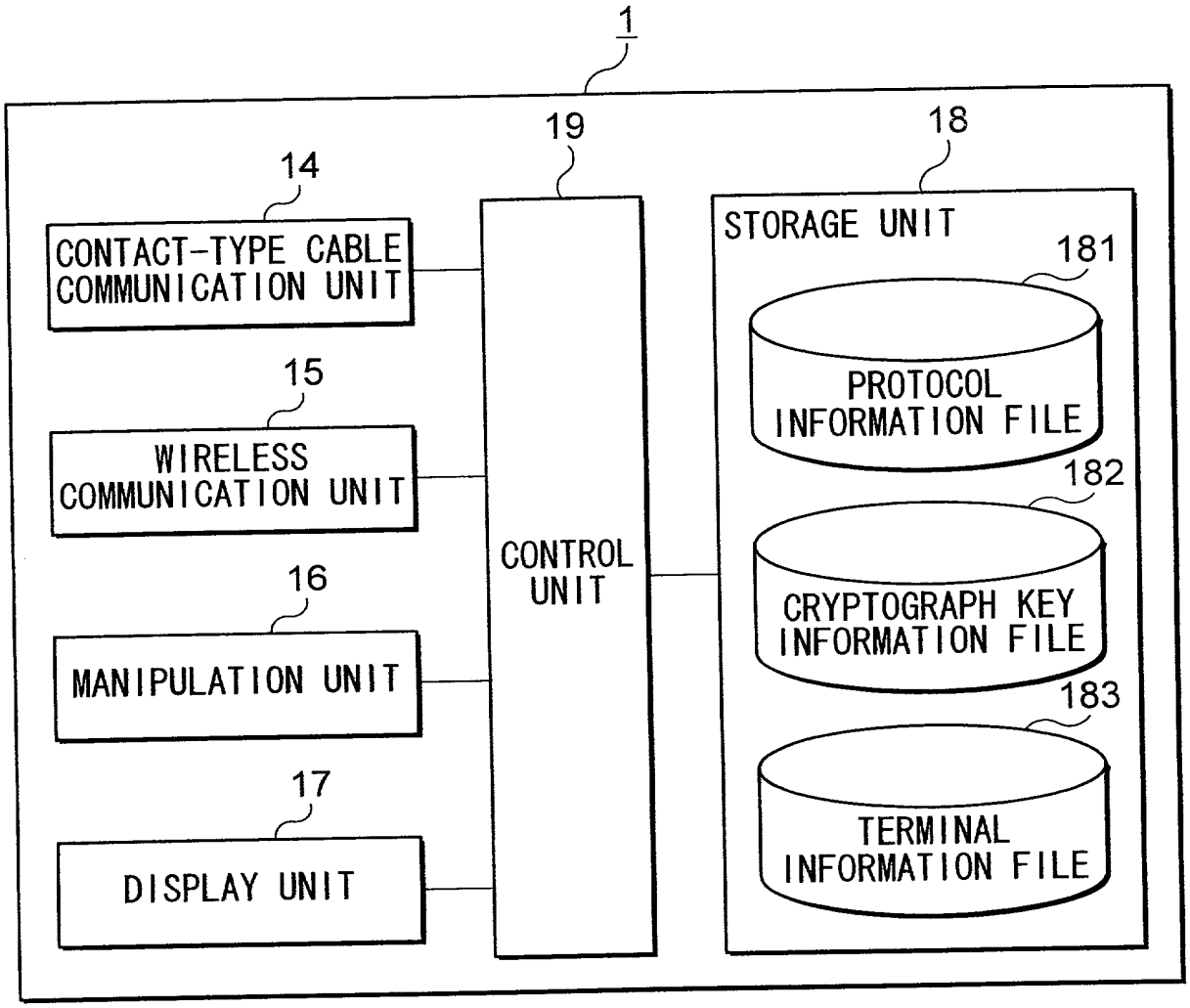

1
19
18
14
CONTACT-TYPE CABLE COMMUNICATION UNIT
STORAGE UNIT
181
PROTOCOL INFORMATION FILE
15
WIRELESS COMMUNICATION UNIT
182
CONTROL UNIT
CRYPTOGRAPH KEY INFORMATION FILE
16
MANIPULATION UNIT
183
TERMINAL INFORMATION FILE
17
DISPLAY UNIT

FIG. 3

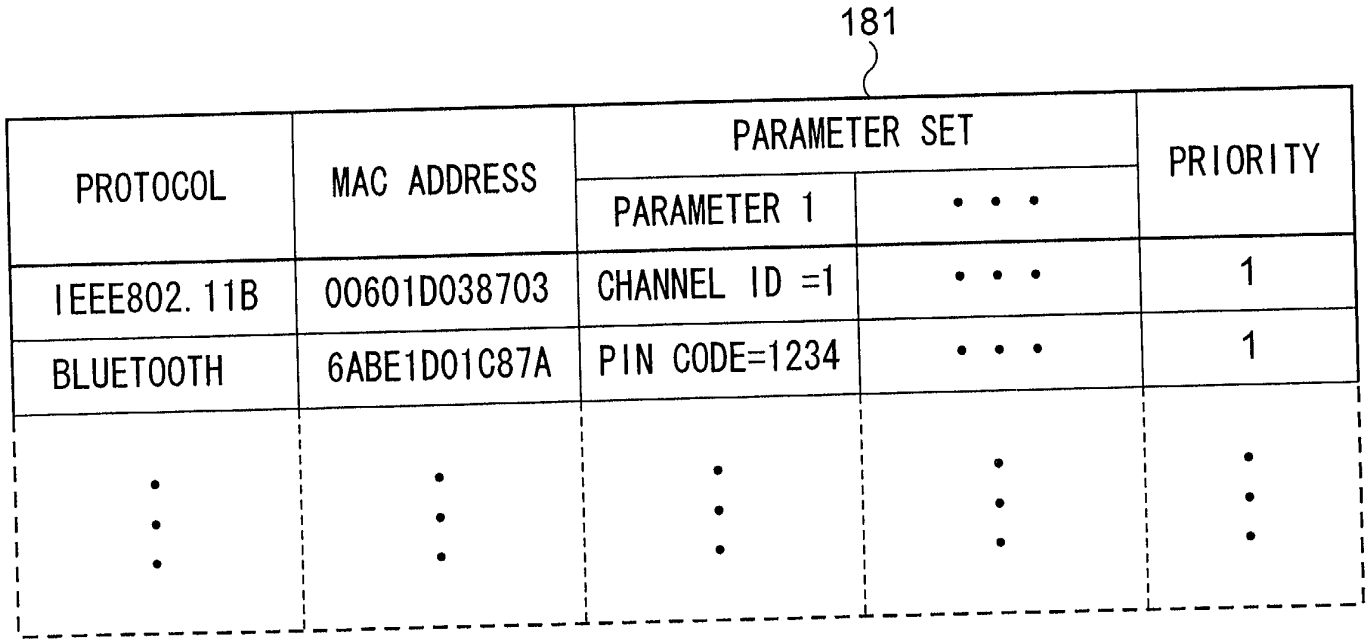

181
PROTOCOL
MAC ADDRESS
PARAMETER SET
PARAMETER 1
• • •
PRIORITY
IEEE802.11B
00601D038703
CHANNEL ID =1
• • •
1
BLUETOOTH
6ABE1D01C87A
PIN CODE=1234
• • •
1

FIG. 4

182

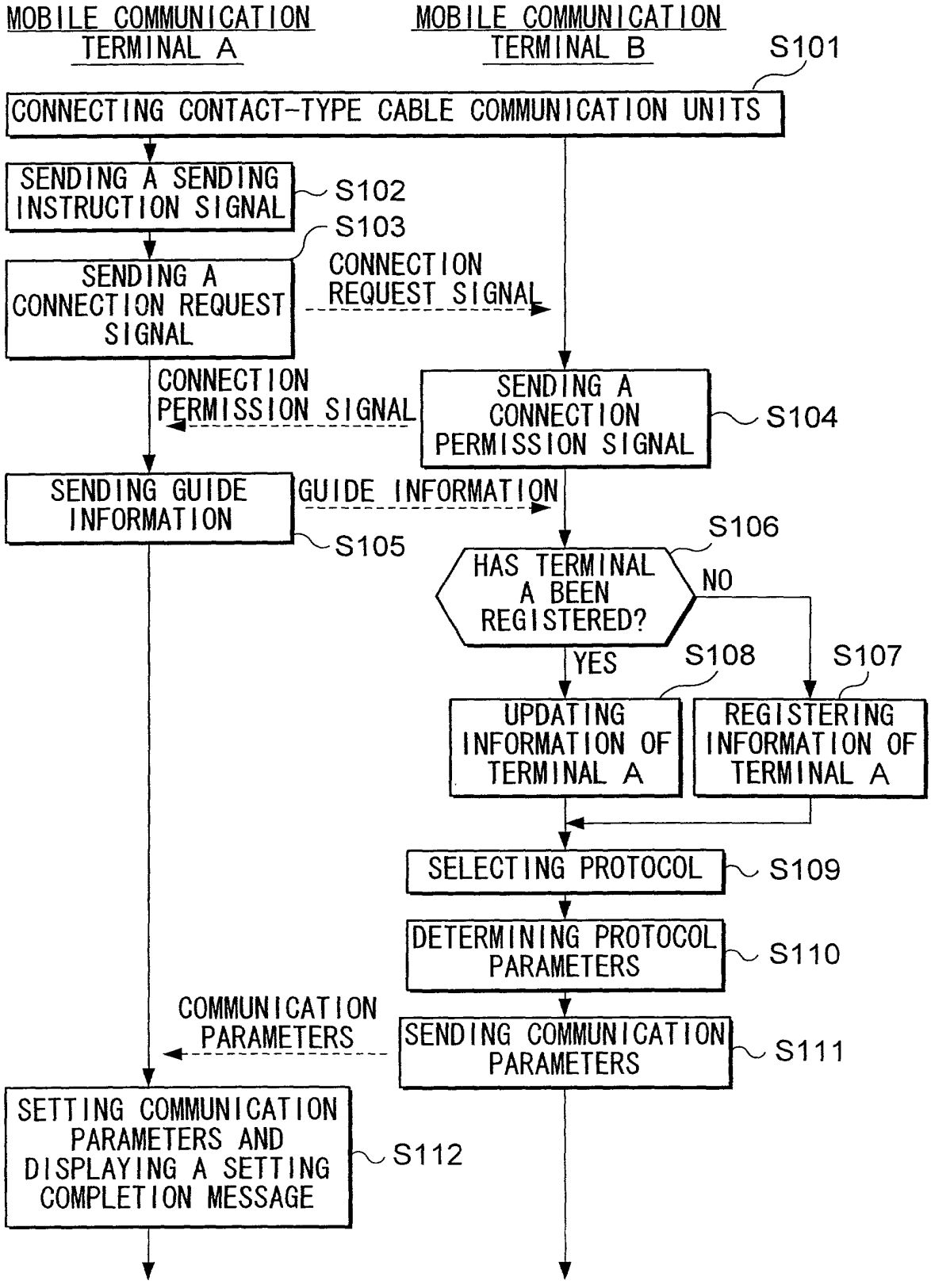
| IDENTIFIER | CRYPTOGRAPH KEY |
|---|---|
| EP00002 | 3D068C4A50 |

FIG. 5

183

| IDENTIFIER | ACCESS RIGHT | CRYPTOGRAPH KEY | PROTOCOL | MAC ADDRESS |
|---|---|---|---|---|
| EP00001 | READ ONLY | 07003A8B4A | BLUETOOTH | 00601D038702 |
| EP00003 | FULL ACCESS | TOP50FB2WG | IEEE802.11B | 00601D038705 |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |

FIG. 6




EP 2 085 944 A2 20090805

FIG. 7

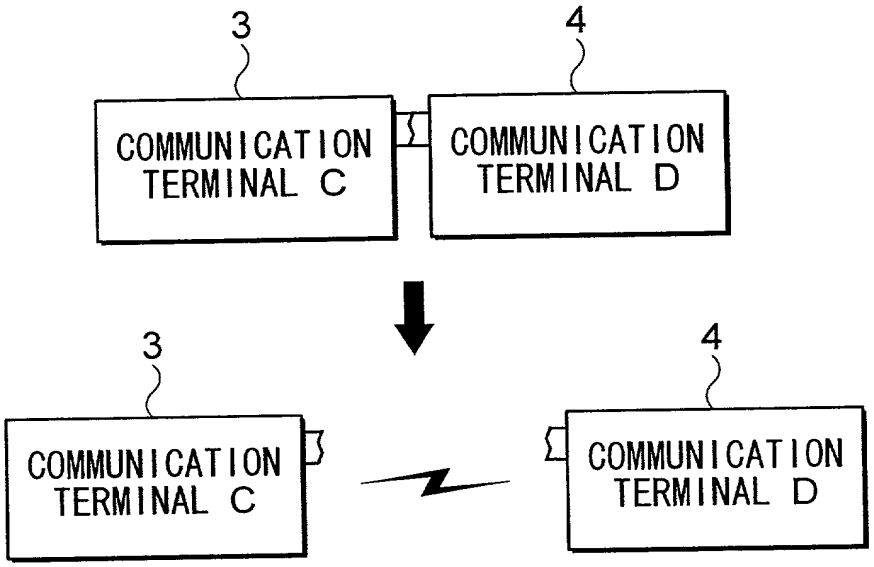

3
4
COMMUNICATION TERMINAL C
COMMUNICATION TERMINAL D
3
4
COMMUNICATION TERMINAL C
COMMUNICATION TERMINAL D

FIG. 8

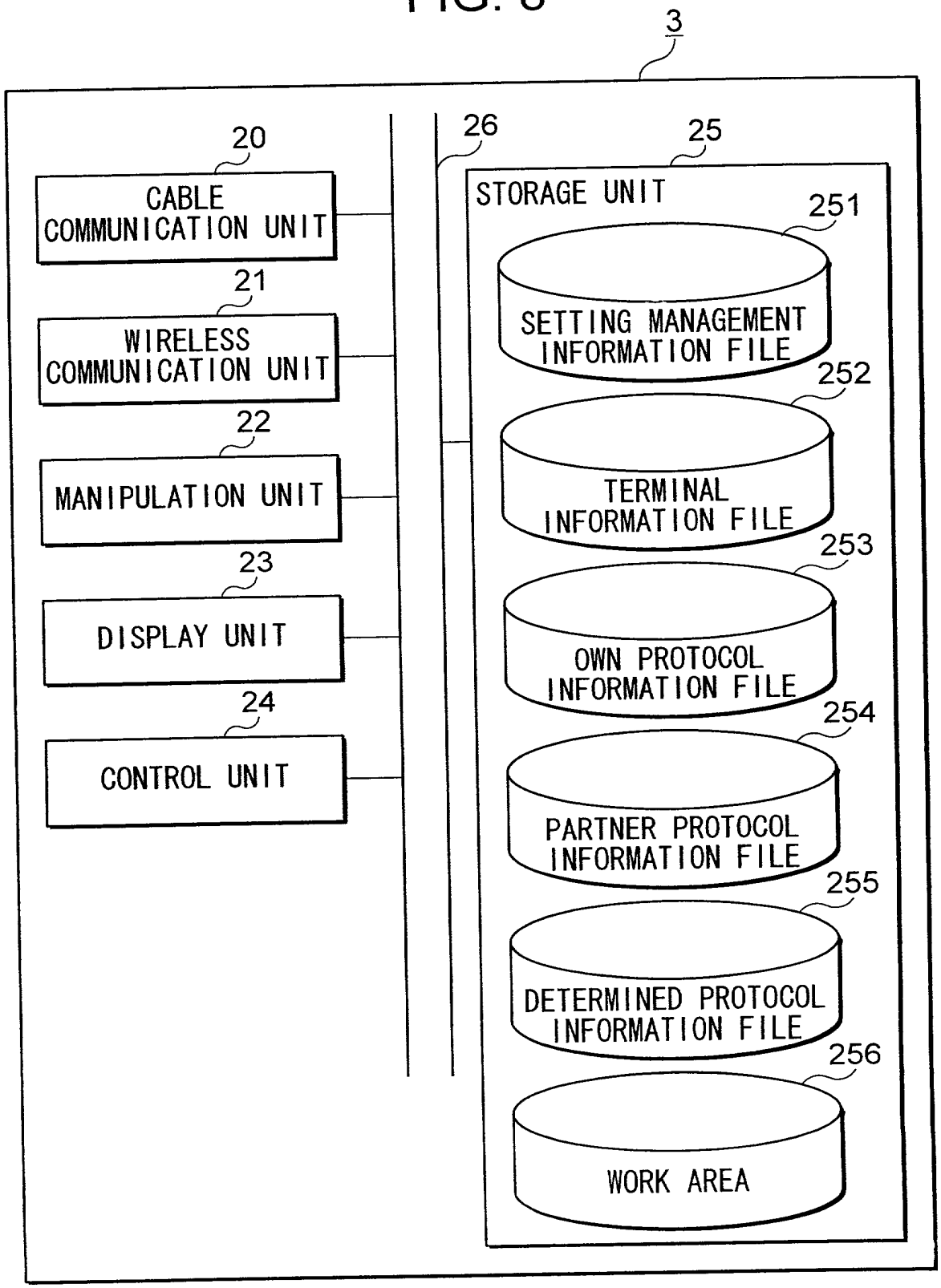

3
20
CABLE COMMUNICATION UNIT
21
WIRELESS COMMUNICATION UNIT
22
MANIPULATION UNIT
23
DISPLAY UNIT
24
CONTROL UNIT
26
25
STORAGE UNIT
251
SETTING MANAGEMENT INFORMATION FILE
252
TERMINAL INFORMATION FILE
253
OWN PROTOCOL INFORMATION FILE
254
PARTNER PROTOCOL INFORMATION FILE
255
DETERMINED PROTOCOL INFORMATION FILE
256
WORK AREA

FIG. 9

251

| MASTER/SLAVE | 1 |
|---|---|
| OWN IDENTIFIER | 0585CA2C |
| PARTNER IDENTIFIER | BC5E7DC0 |
| PASSWORD | AZ23¥#C7 |
| COMMON KEY | V1H4E5JQXHP3EM6FEAK#VCUN |
| SETTING COMPLETION NOTICE FLAG | OFF |

FIG. 10

252

| IDENTIFIER |
|---|
| 57242C0D |
| BBA60A16 |
| ⋮ |

2025-04-08 09:04:08

FIG. 11

253

| PRIORITY | MAC ADDRESS | PROTOCOL SET | PARAMETER SET | | | |
|---|---|---|---|---|---|---|
| | | | PARAMETER 1 | PARAMETER 2 | PARAMETER 3 | ・・・ |
| 1 | E8B0324FC8E5 | IEEE802.11B - NET BEUI | IEEE802.11B MODE=AD HOC | IEEE802.11B CHANNEL ID=7 | — | ・・・ |
| 2 | 5B98007E03E2 | IEEE802.11B - TCP/IP | IEEE802.11B MODE= INFRASTRUCTURE | IEEE802.11B CHANNEL ID=3 | IP ADDRESS / SUBNET MASK 192.168.0.220/ 255.255.255.0 | ・・・ |
| 3 | F0A6998BF3CB | BLUETOOTH - NET BEUI | BLUETOOTH PIN CODE= 2851 | — | — | ・・・ |
| ・ | ・ | ・ | ・ | ・ | ・ | ・ |
| ・ | ・ | ・ | ・ | ・ | ・ | ・ |
| ・ | ・ | ・ | ・ | ・ | ・ | ・ |

FIG. 12

254

| MAC ADDRESS | PROTOCOL SET |
|---|---|
| 58DF46499F0C | IEEE802.11B - TCP/IP |
| 58DF46499F0C | IEEE802.11B - IPX/SPX |
| C59166816E84 | HOME RF - NET BEUI |
| ⋮ | ⋮ |

FIG. 13

255

| OWN MAC ADDRESS | PARTNER MAC ADDRESS | PROTOCOL SET | PARAMETER SET | | | |
|---|---|---|---|---|---|---|
| | | | PARAMETER 1 | PARAMETER 2 | PARAMETER 3 | • • • |
| 5B98007E03E2 | 58DF46499F0C | IEEE802.11B - TCP/IP | IEEE802.11B MODE=AD HOC | IEEE802.11B CHANNEL ID=5 | IP ADDRESS / SUBNET MASK 192.168.0.221/ 255.255.255.0 | • • • |

FIG. 14

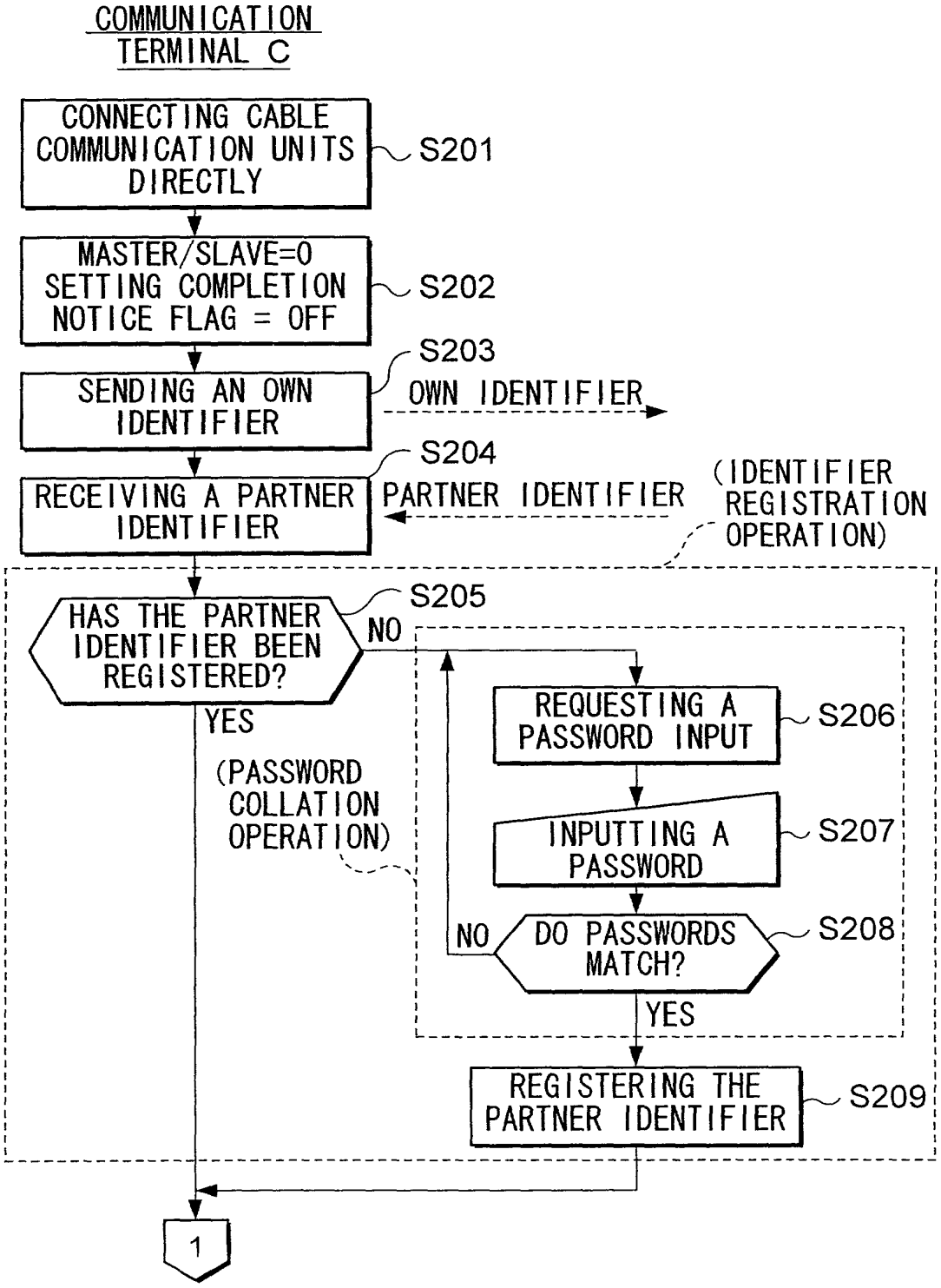

COMMUNICATION TERMINAL C
CONNECTING CABLE COMMUNICATION UNITS DIRECTLY
S201
MASTER/SLAVE=0 SETTING COMPLETION NOTICE FLAG = OFF
S202
SENDING AN OWN IDENTIFIER
S203
OWN IDENTIFIER
RECEIVING A PARTNER IDENTIFIER
S204
PARTNER IDENTIFIER
(IDENTIFIER REGISTRATION OPERATION)
HAS THE PARTNER IDENTIFIER BEEN REGISTERED?
S205
NO
YES
(PASSWORD COLLATION OPERATION)
REQUESTING A PASSWORD INPUT
S206
INPUTTING A PASSWORD
S207
NO
DO PASSWORDS MATCH?
S208
YES
REGISTERING THE PARTNER IDENTIFIER
S209
1

FIG. 15

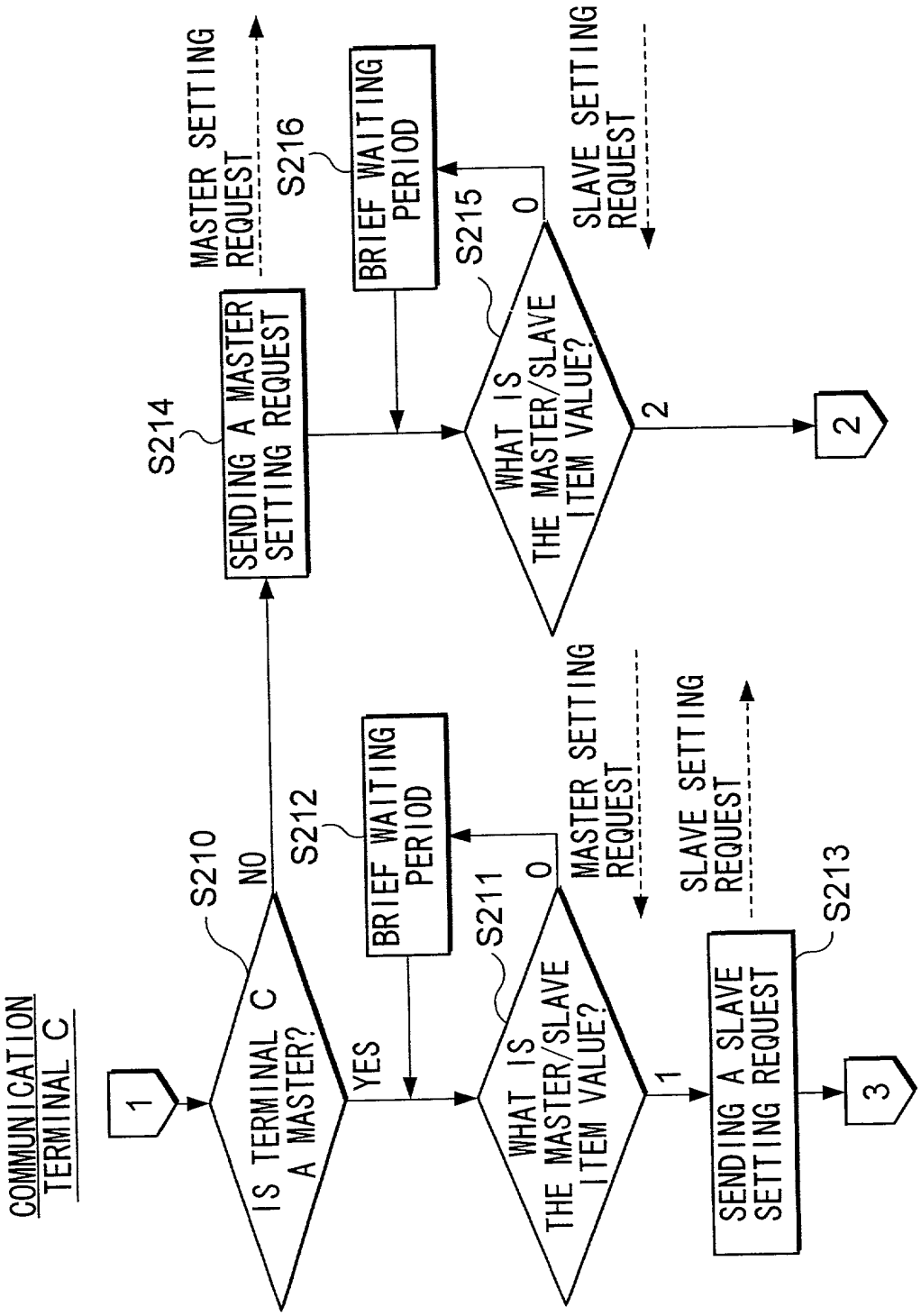

COMMUNICATION TERMINAL C
1
S210
IS TERMINAL C A MASTER?
NO
YES
S212
BRIEF WAITING PERIOD
S211
WHAT IS THE MASTER/SLAVE ITEM VALUE?
0
1
MASTER SETTING REQUEST
SLAVE SETTING REQUEST
S213
SENDING A SLAVE SETTING REQUEST
3
S214
SENDING A MASTER SETTING REQUEST
MASTER SETTING REQUEST
S216
BRIEF WAITING PERIOD
S215
WHAT IS THE MASTER/SLAVE ITEM VALUE?
0
2
SLAVE SETTING REQUEST
2

FIG. 16

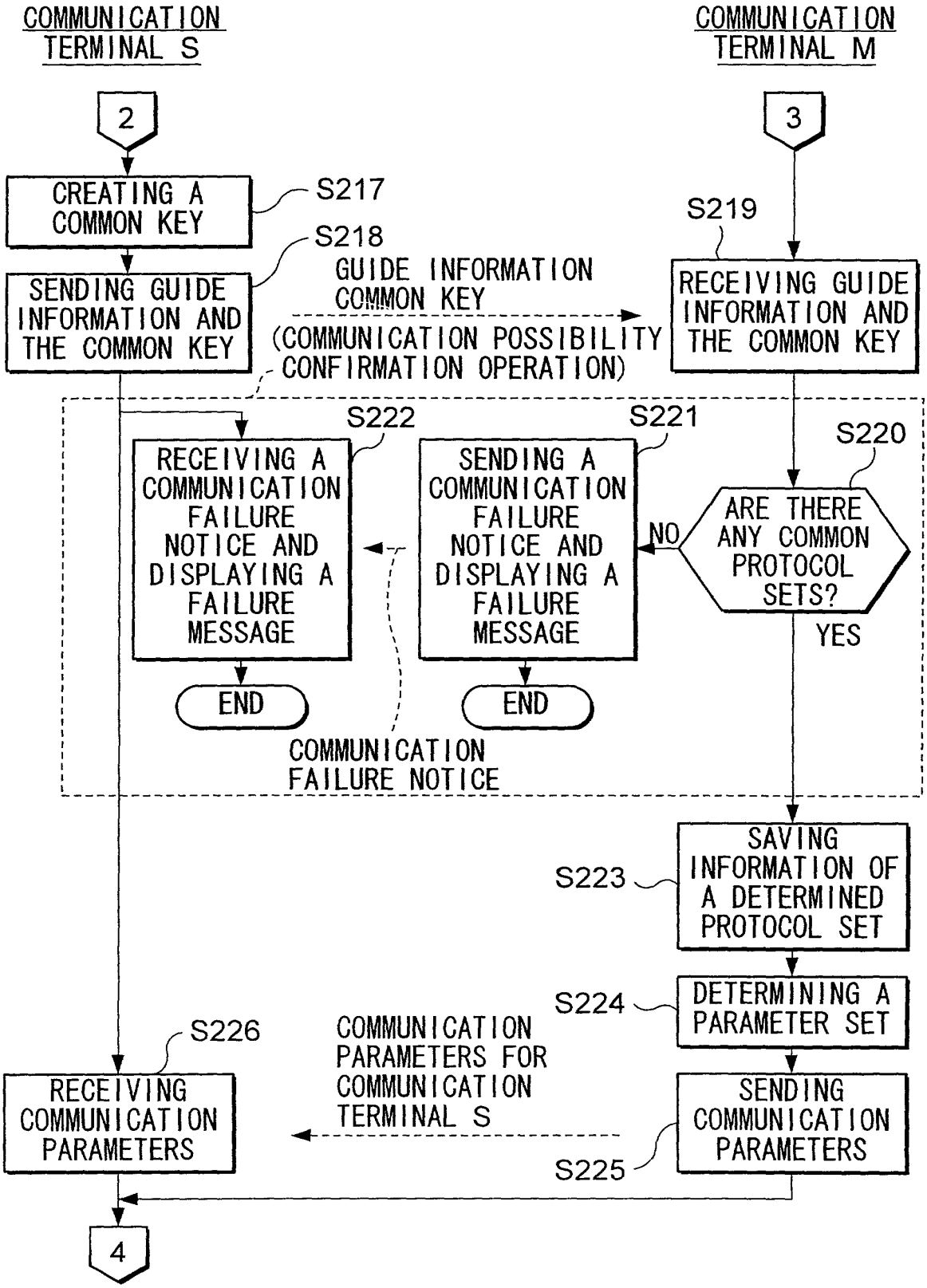

COMMUNICATION TERMINAL S
COMMUNICATION TERMINAL M
2
3
CREATING A COMMON KEY
S217
S218
SENDING GUIDE INFORMATION AND THE COMMON KEY
GUIDE INFORMATION COMMON KEY
(COMMUNICATION POSSIBILITY CONFIRMATION OPERATION)
S219
RECEIVING GUIDE INFORMATION AND THE COMMON KEY
S222
S221
S220
RECEIVING A COMMUNICATION FAILURE NOTICE AND DISPLAYING A FAILURE MESSAGE
SENDING A COMMUNICATION FAILURE NOTICE AND DISPLAYING A FAILURE MESSAGE
ARE THERE ANY COMMON PROTOCOL SETS?
NO
YES
END
END
COMMUNICATION FAILURE NOTICE
SAVING INFORMATION OF A DETERMINED PROTOCOL SET
S223
DETERMINING A PARAMETER SET
S224
S226
COMMUNICATION PARAMETERS FOR COMMUNICATION TERMINAL S
RECEIVING COMMUNICATION PARAMETERS
SENDING COMMUNICATION PARAMETERS
S225
4

FIG. 17

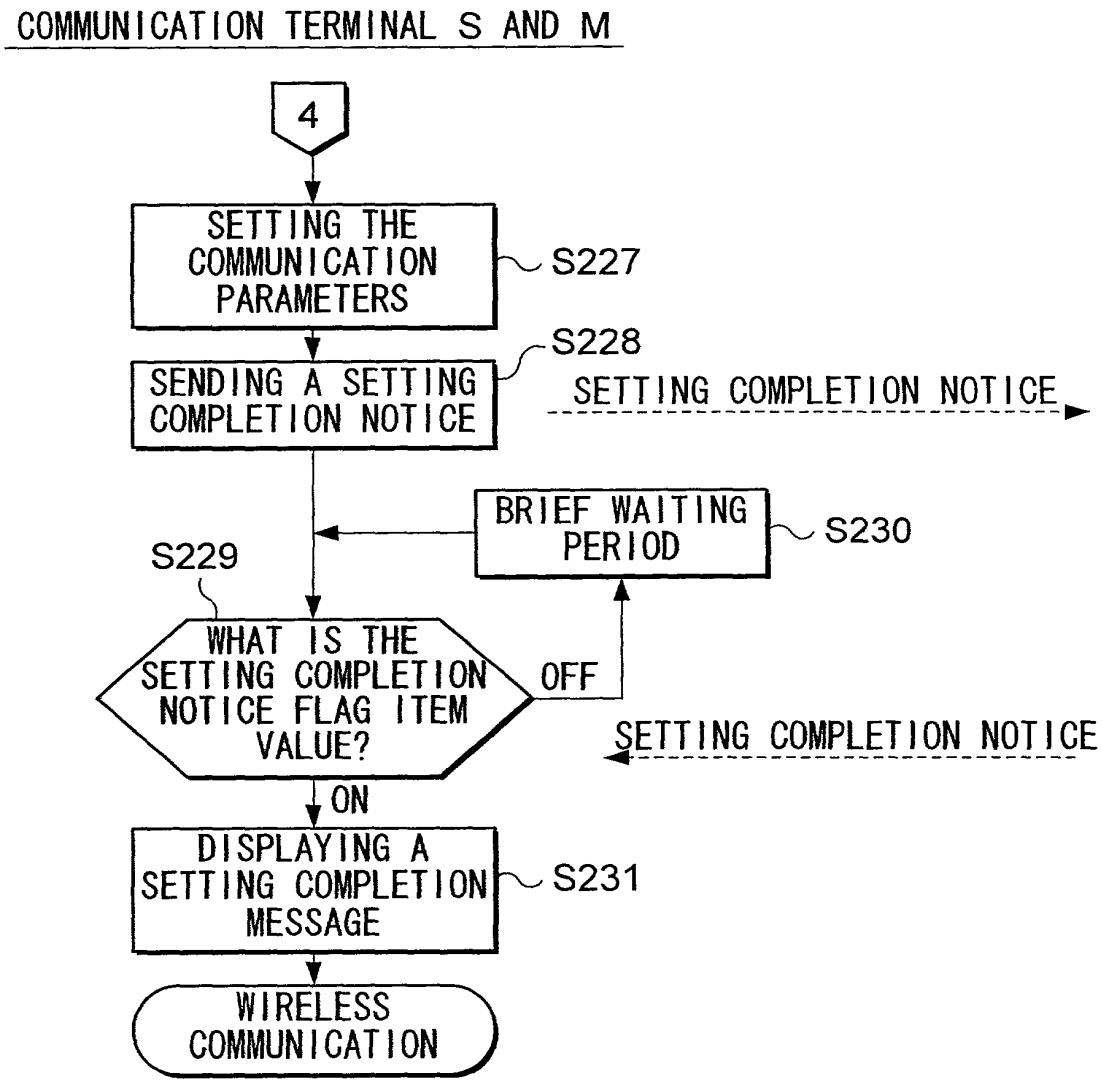

COMMUNICATION TERMINAL S AND M
4
SETTING THE COMMUNICATION PARAMETERS
S227
SENDING A SETTING COMPLETION NOTICE
S228
SETTING COMPLETION NOTICE
BRIEF WAITING PERIOD
S230
S229
WHAT IS THE SETTING COMPLETION NOTICE FLAG ITEM VALUE?
OFF
SETTING COMPLETION NOTICE
ON
DISPLAYING A SETTING COMPLETION MESSAGE
S231
WIRELESS COMMUNICATION

FIG. 18

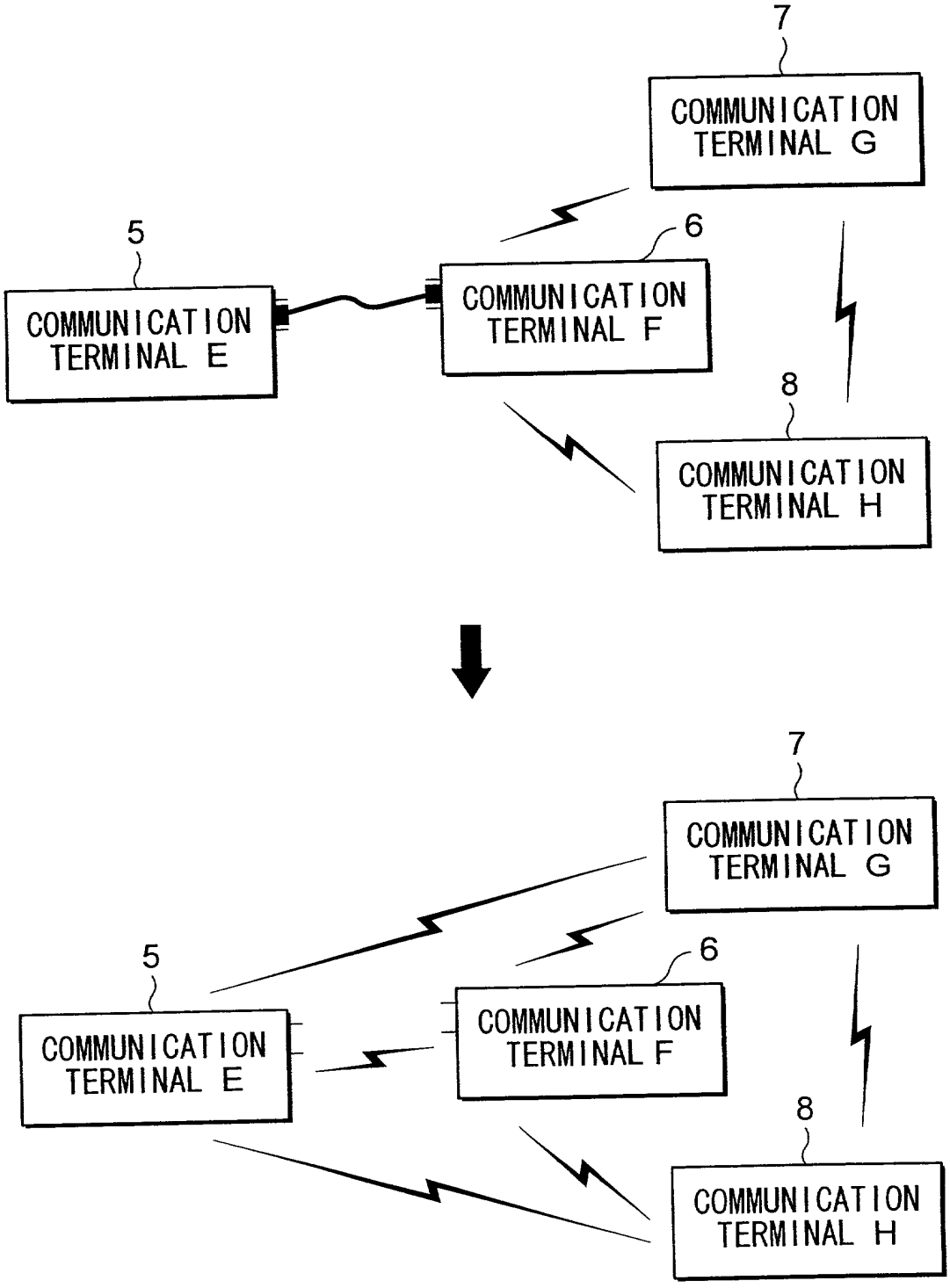



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FIG. 19

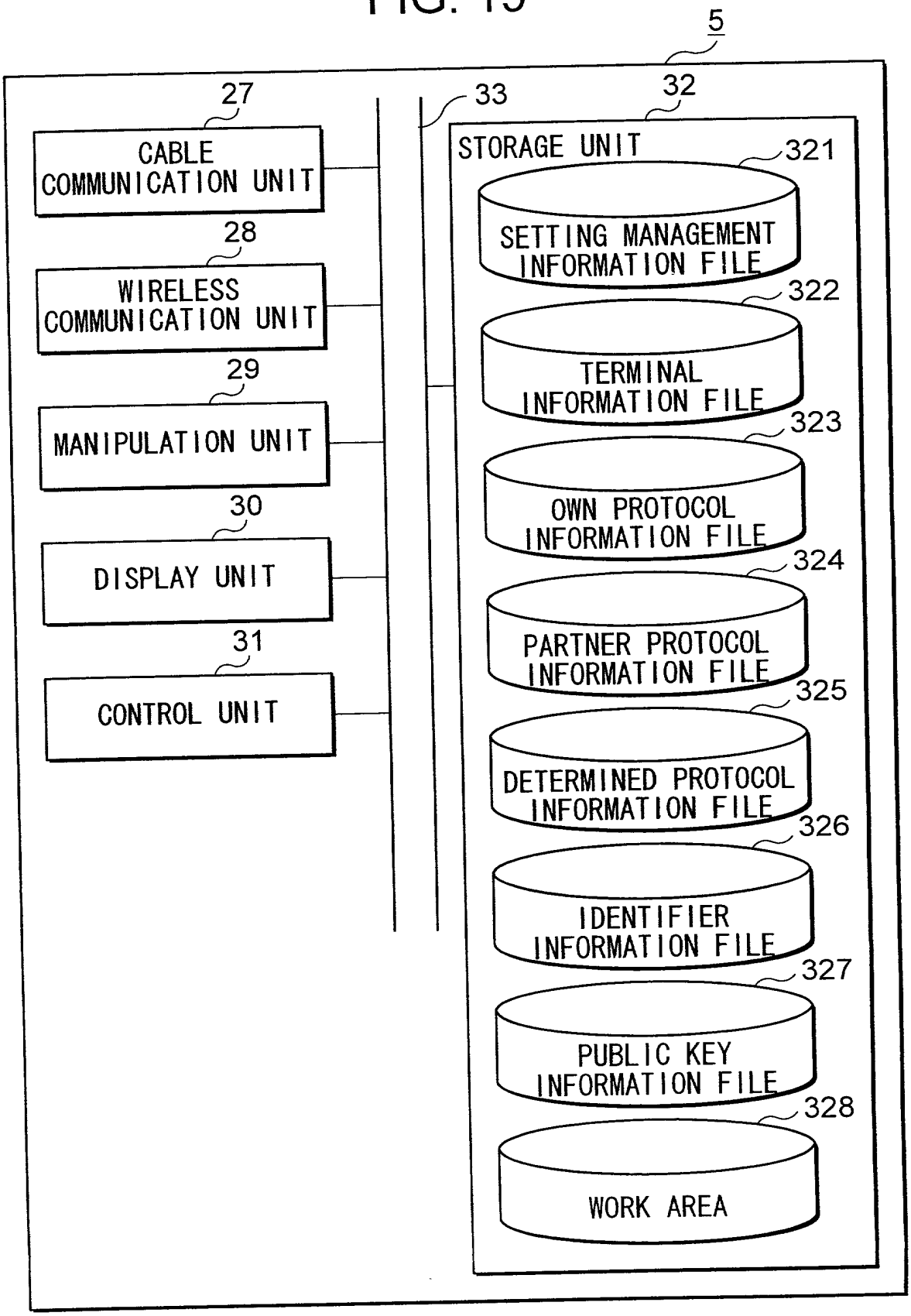
5
27
CABLE COMMUNICATION UNIT
28
WIRELESS COMMUNICATION UNIT
29
MANIPULATION UNIT
30
DISPLAY UNIT
31
CONTROL UNIT
33
32
STORAGE UNIT
321
SETTING MANAGEMENT INFORMATION FILE
322
TERMINAL INFORMATION FILE
323
OWN PROTOCOL INFORMATION FILE
324
PARTNER PROTOCOL INFORMATION FILE
325
DETERMINED PROTOCOL INFORMATION FILE
326
IDENTIFIER INFORMATION FILE
327
PUBLIC KEY INFORMATION FILE
328
WORK AREA

FIG. 20

EPO - DG 1 - 04.05.2021 - 20210504

321

| OWN IDENTIFIER | 19ABB17A |
|---|---|
| PASSWORD | 7BAIK8B# |
| PRIVATE KEY | LAW#Q&S26F9RY3Q%SOO%TLEU |
| PUBLIC KEY | GC3RXWZJRF946S29P25C2$MP |

FIG. 21

323

| MAC ADDRESS | PROTOCOL SET | PARAMETER SET | | | |
|---|---|---|---|---|---|
| | | PARAMETER 1 | PARAMETER 2 | PARAMETER 3 | ・・・ |
| A05CBE6ADEE5 | IEEE802.11B - NET BEUI | IEEE802.11B MODE=AD HOC | IEEE802.11B CHANNEL ID=5 | — | ・・・ |
| A05CBE6ADEE5 | IEEE802.11B - TCP/IP | IEEE802.11B MODE=AD HOC | IEEE802.11B CHANNEL ID=5 | IP ADDRESS / SUBNET MASK 192.168.0.60/ 255.255.255.0 | ・・・ |
| BB2214AA3C1A | BLUETOOTH - NET BEUI | BLUETOOTH PIN CODE= 7218 | — | — | ・・・ |
| ・ | ・ | ・ | ・ | ・ | ・ |
| ・ | ・ | ・ | ・ | ・ | ・ |
| ・ | ・ | ・ | ・ | ・ | ・ |

FIG. 22

325

| OWN MAC ADDRESS | PARTNER MAC ADDRESS | PROTOCOL SET | PARAMETER SET | | | |
|---|---|---|---|---|---|---|
| | | | PARAMETER 1 | PARAMETER 2 | PARAMETER 3 | • • • |
| A05CBE6ADEE5 | 5FFD147EFFFF | IEEE802.11B - TCP/IP | IEEE802.11B MODE=AD HOC | IEEE802.11B CHANNEL ID=3 | IP ADDRESS / SUBNET MASK 192.168.0.222/ 255.255.255.0 | • • • |
| BB2214AA3C1A | ABF82A04D002 | BLUETOOTH - NET BEUI | BLUETOOTH PIN CODE= 4E63 | — | — | • • • |
| • • • | • • • | • • • | • • • | • • • | • • • | • • • |

FIG. 23

326

| MAC ADDRESS | IDENTIFIER |
|---|---|
| B7614A795845 | 34FA9FF7 |
| 5FFD147EFFFF | 32CCA022 |
| ABF82A04D002 | 32CCA022 |
| 48D6A6626071 | 942D7BE6 |
| ⋮ | ⋮ |

FIG. 24

327

| IDENTIFIER | PUBLIC KEY |
|---|---|
| 0243B88E | TJFSJWRZ#E5EYEGA$27DB#%8 |
| 32CCA022 | U#Y#09V$3JQEA%IVVZ5YA0M5 |
| 3869B1F4 | 0C#&M6LBS%Z7V#HIP3ZTHA&1 |
| ⋮ | ⋮ |

FIG. 25

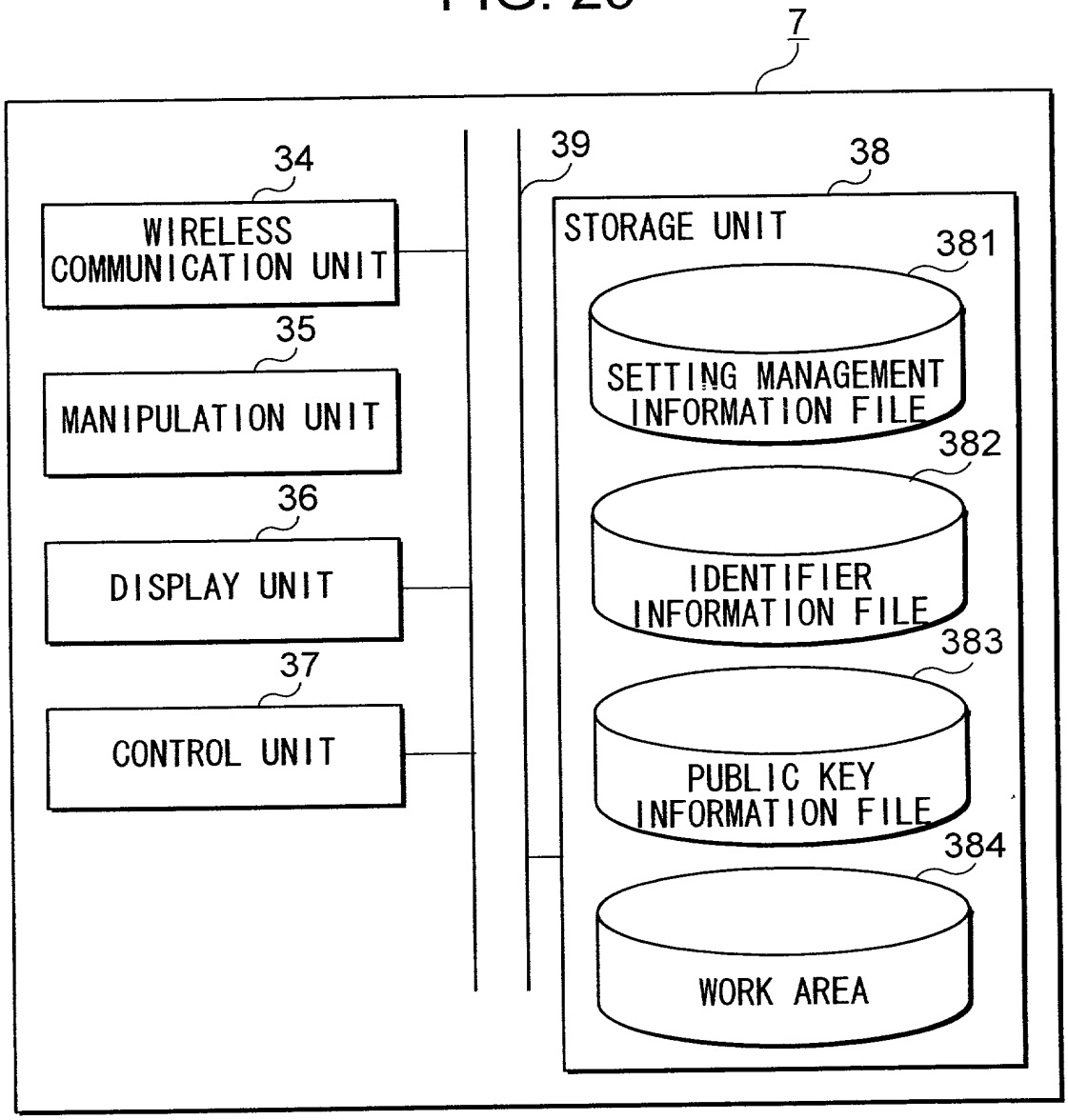


FIG. 26

381

| OWN IDENTIFIER | 3869B1F4 |
|---|---|
| PRIVATE KEY | ZW1Y3U3G&UK5ONLNLS1MNLK$ |
| PUBLIC KEY | OC#&M6LBS%Z7V#HIP3ZTHA&1 |

FIG. 27

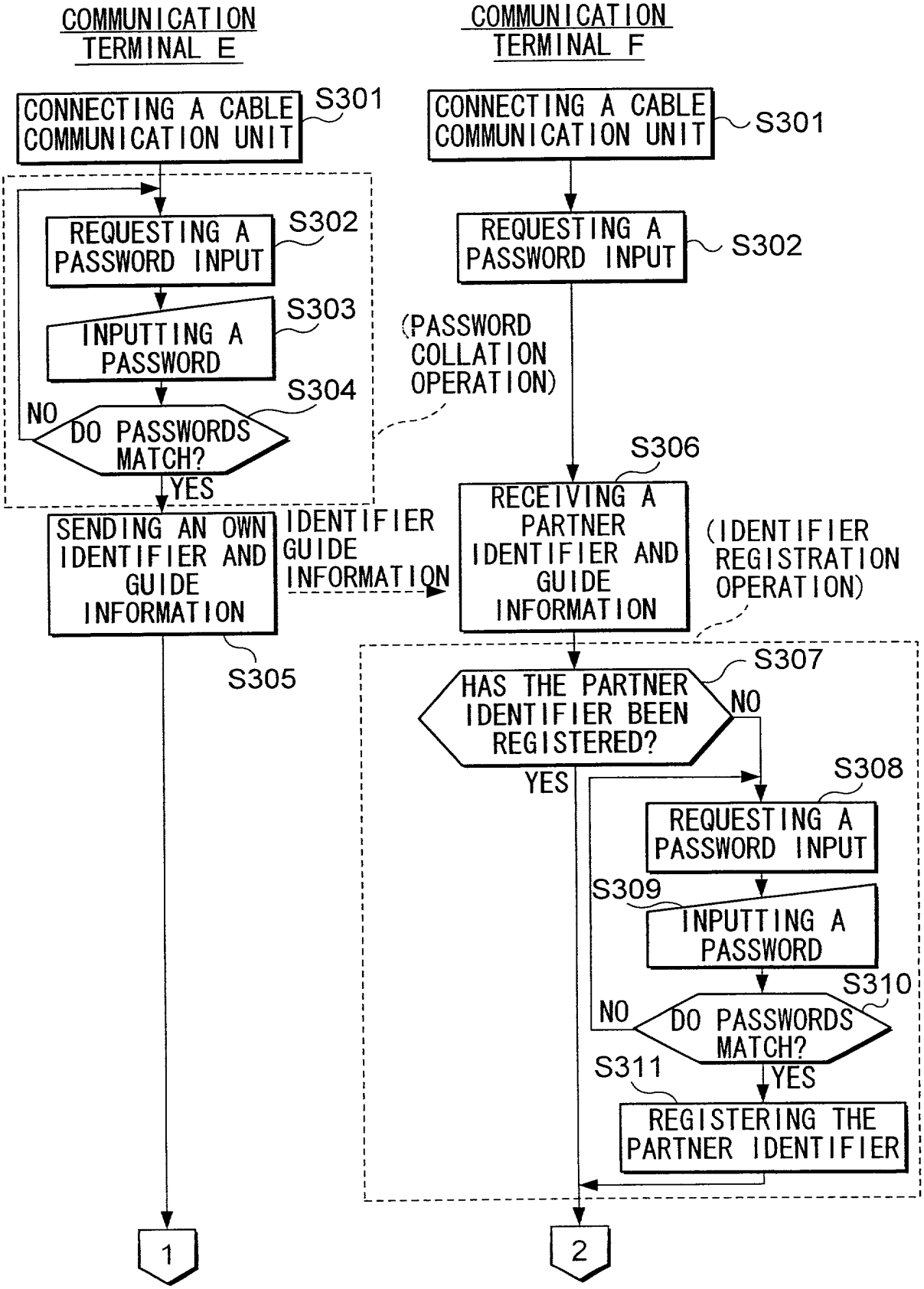
COMMUNICATION TERMINAL E
COMMUNICATION TERMINAL F
CONNECTING A CABLE COMMUNICATION UNIT
S301
CONNECTING A CABLE COMMUNICATION UNIT
S301
REQUESTING A PASSWORD INPUT
S302
REQUESTING A PASSWORD INPUT
S302
INPUTTING A PASSWORD
S303
(PASSWORD COLLATION OPERATION)
NO
DO PASSWORDS MATCH?
S304
YES
S306
SENDING AN OWN IDENTIFIER AND GUIDE INFORMATION
IDENTIFIER GUIDE INFORMATION
RECEIVING A PARTNER IDENTIFIER AND GUIDE INFORMATION
(IDENTIFIER REGISTRATION OPERATION)
S305
S307
HAS THE PARTNER IDENTIFIER BEEN REGISTERED?
NO
YES
S308
REQUESTING A PASSWORD INPUT
S309
INPUTTING A PASSWORD
S310
NO
DO PASSWORDS MATCH?
S311
YES
REGISTERING THE PARTNER IDENTIFIER
1
2

FIG. 28

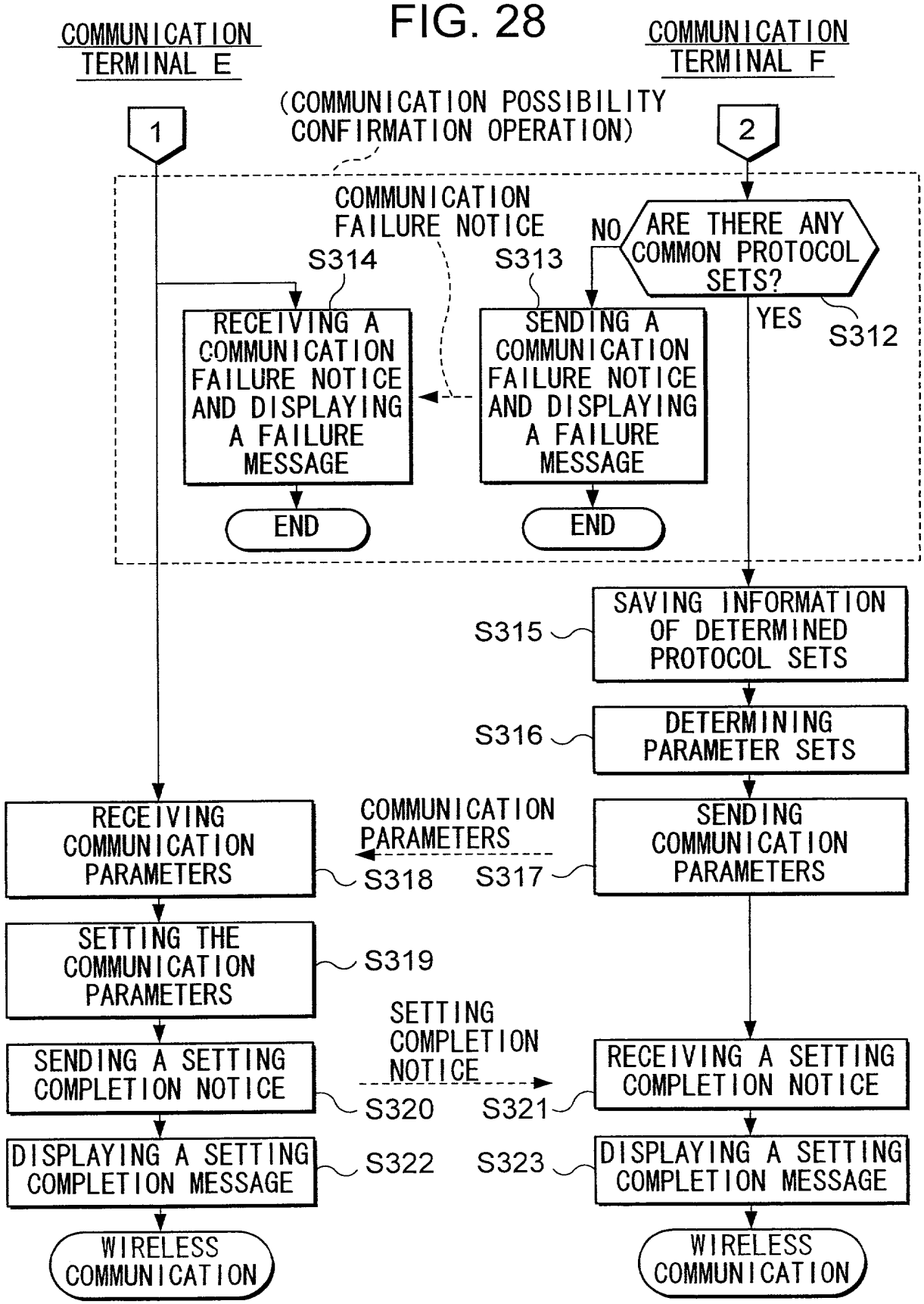
COMMUNICATION TERMINAL E
COMMUNICATION TERMINAL F
(COMMUNICATION POSSIBILITY CONFIRMATION OPERATION)
1
2
COMMUNICATION FAILURE NOTICE
NO
ARE THERE ANY COMMON PROTOCOL SETS?
YES
S312
S313
S314
RECEIVING A COMMUNICATION FAILURE NOTICE AND DISPLAYING A FAILURE MESSAGE
SENDING A COMMUNICATION FAILURE NOTICE AND DISPLAYING A FAILURE MESSAGE
END
END
S315
SAVING INFORMATION OF DETERMINED PROTOCOL SETS
S316
DETERMINING PARAMETER SETS
RECEIVING COMMUNICATION PARAMETERS
COMMUNICATION PARAMETERS
S318
S317
SENDING COMMUNICATION PARAMETERS
SETTING THE COMMUNICATION PARAMETERS
S319
SETTING COMPLETION NOTICE
SENDING A SETTING COMPLETION NOTICE
S320
S321
RECEIVING A SETTING COMPLETION NOTICE
DISPLAYING A SETTING COMPLETION MESSAGE
S322
S323
DISPLAYING A SETTING COMPLETION MESSAGE
WIRELESS COMMUNICATION
WIRELESS COMMUNICATION

FIG. 29

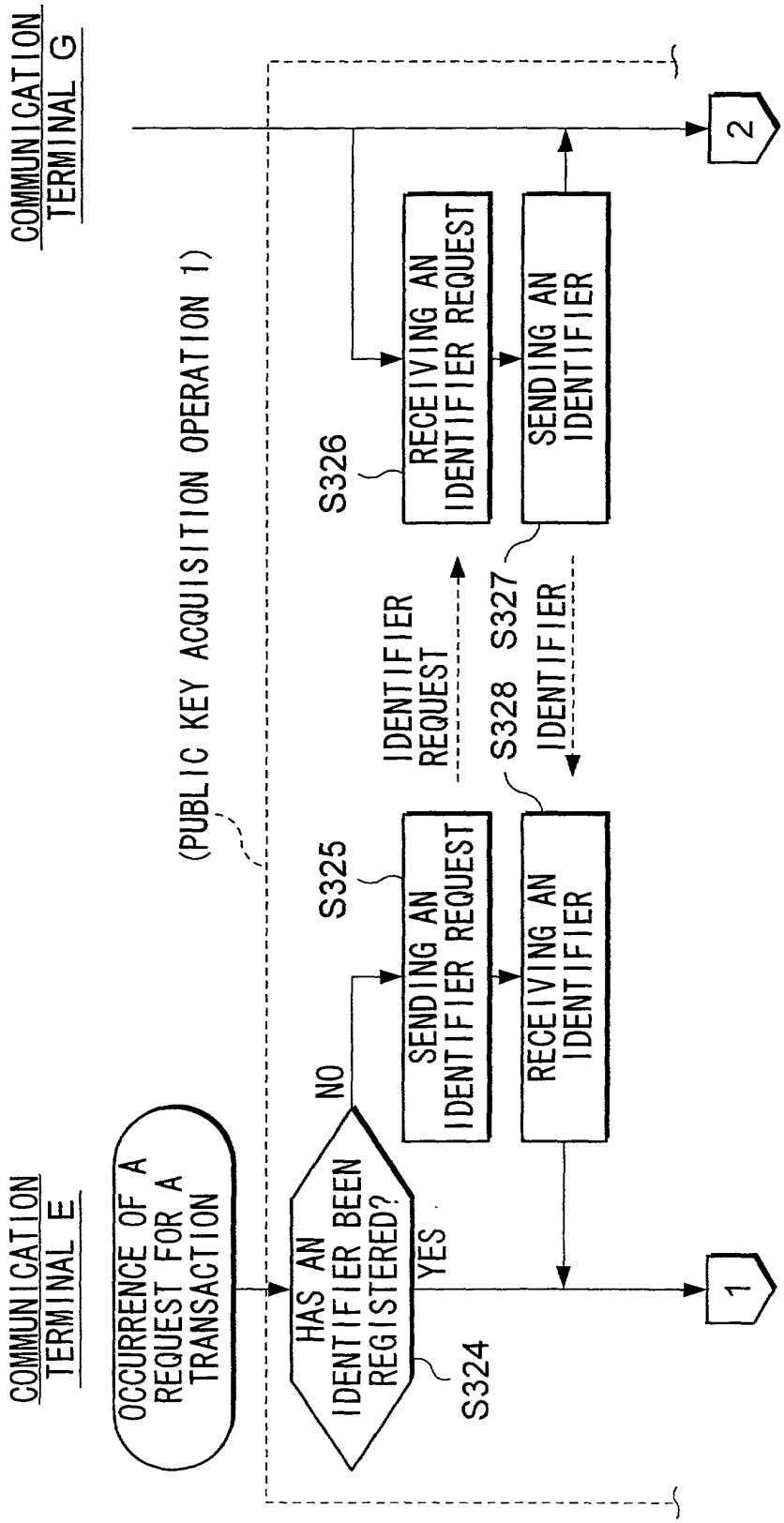
COMMUNICATION TERMINAL E
COMMUNICATION TERMINAL G
OCCURRENCE OF A REQUEST FOR A TRANSACTION
(PUBLIC KEY ACQUISITION OPERATION 1)
HAS AN IDENTIFIER BEEN REGISTERED?
S324
NO
YES
S325
SENDING AN IDENTIFIER REQUEST
IDENTIFIER REQUEST
S326
RECEIVING AN IDENTIFIER REQUEST
SENDING AN IDENTIFIER
S327
IDENTIFIER
S328
RECEIVING AN IDENTIFIER
1
2

FIG. 30

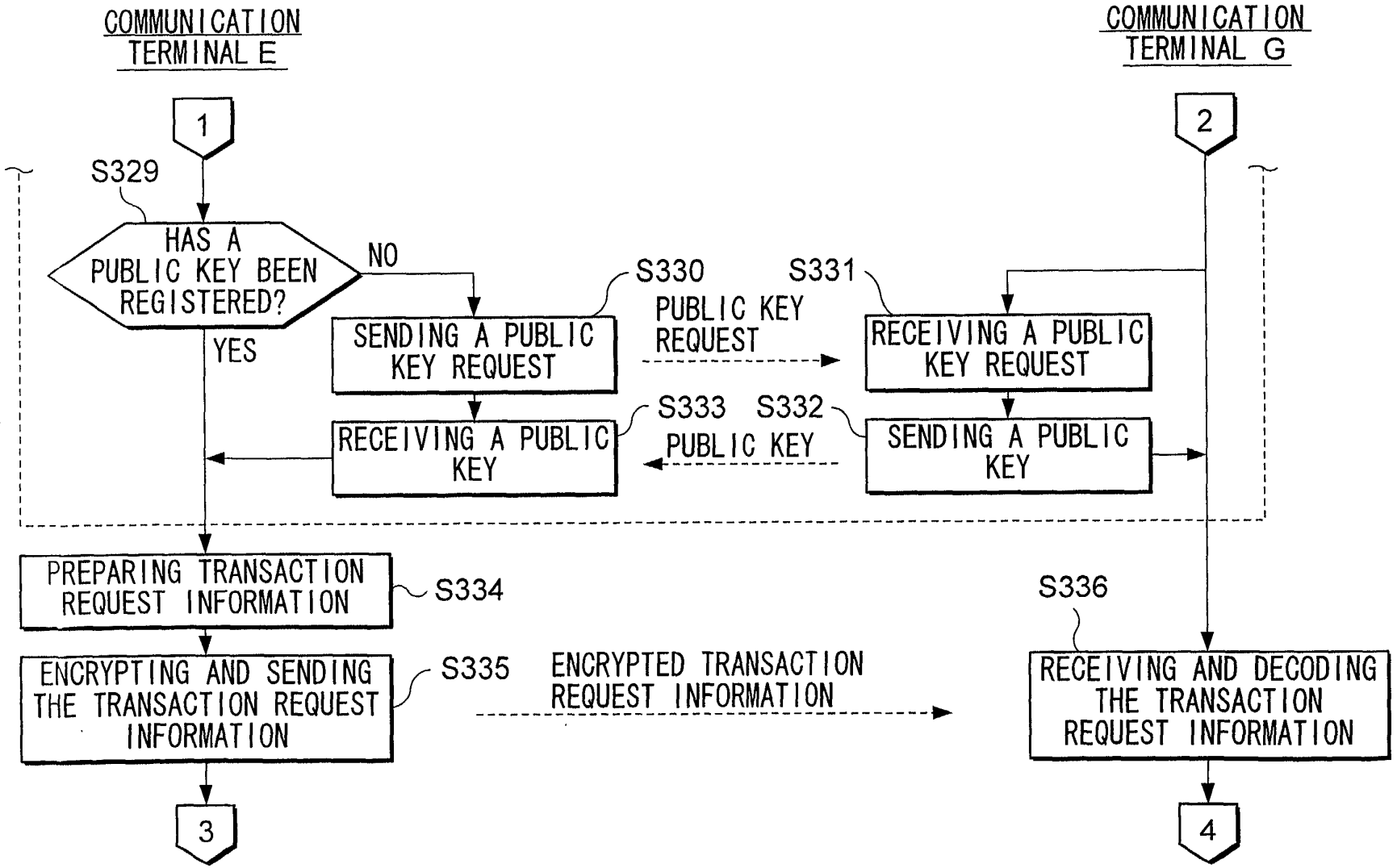
COMMUNICATION TERMINAL E
COMMUNICATION TERMINAL G
1
2
S329
HAS A PUBLIC KEY BEEN REGISTERED?
NO
YES
S330
SENDING A PUBLIC KEY REQUEST
PUBLIC KEY REQUEST
S331
RECEIVING A PUBLIC KEY REQUEST
S333
RECEIVING A PUBLIC KEY
PUBLIC KEY
S332
SENDING A PUBLIC KEY
PREPARING TRANSACTION REQUEST INFORMATION
S334
ENCRYPTING AND SENDING THE TRANSACTION REQUEST INFORMATION
S335
ENCRYPTED TRANSACTION REQUEST INFORMATION
S336
RECEIVING AND DECODING THE TRANSACTION REQUEST INFORMATION
3
4

FIG. 31

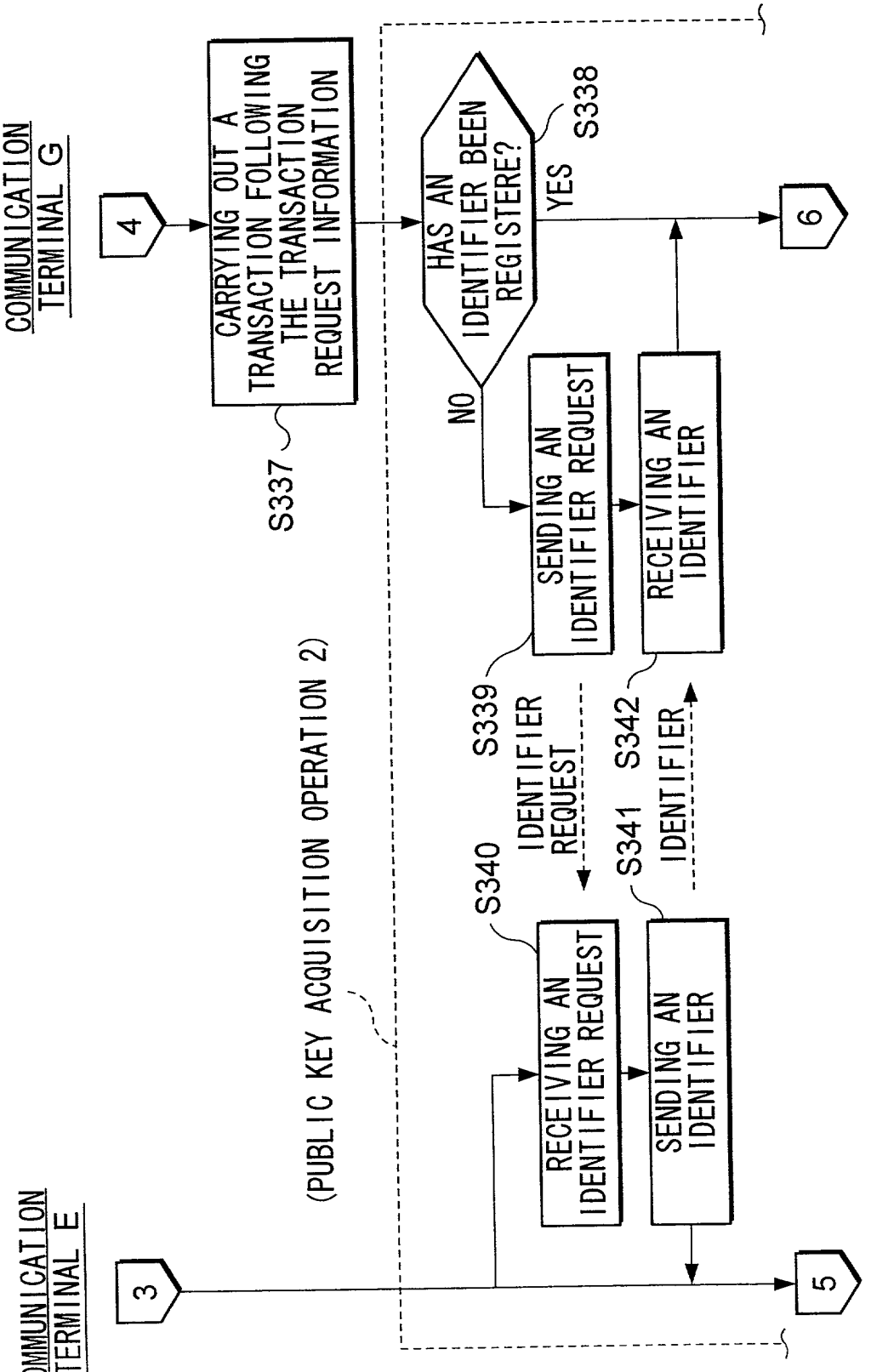
COMMUNICATION TERMINAL G
COMMUNICATION TERMINAL E
4
CARRYING OUT A TRANSACTION FOLLOWING THE TRANSACTION REQUEST INFORMATION
S337
HAS AN IDENTIFIER BEEN REGISTERE?
S338
YES
NO
6
(PUBLIC KEY ACQUISITION OPERATION 2)
SENDING AN IDENTIFIER REQUEST
S339
IDENTIFIER REQUEST
S340
RECEIVING AN IDENTIFIER REQUEST
S341
SENDING AN IDENTIFIER
IDENTIFIER
S342
RECEIVING AN IDENTIFIER
3
5

FIG. 32

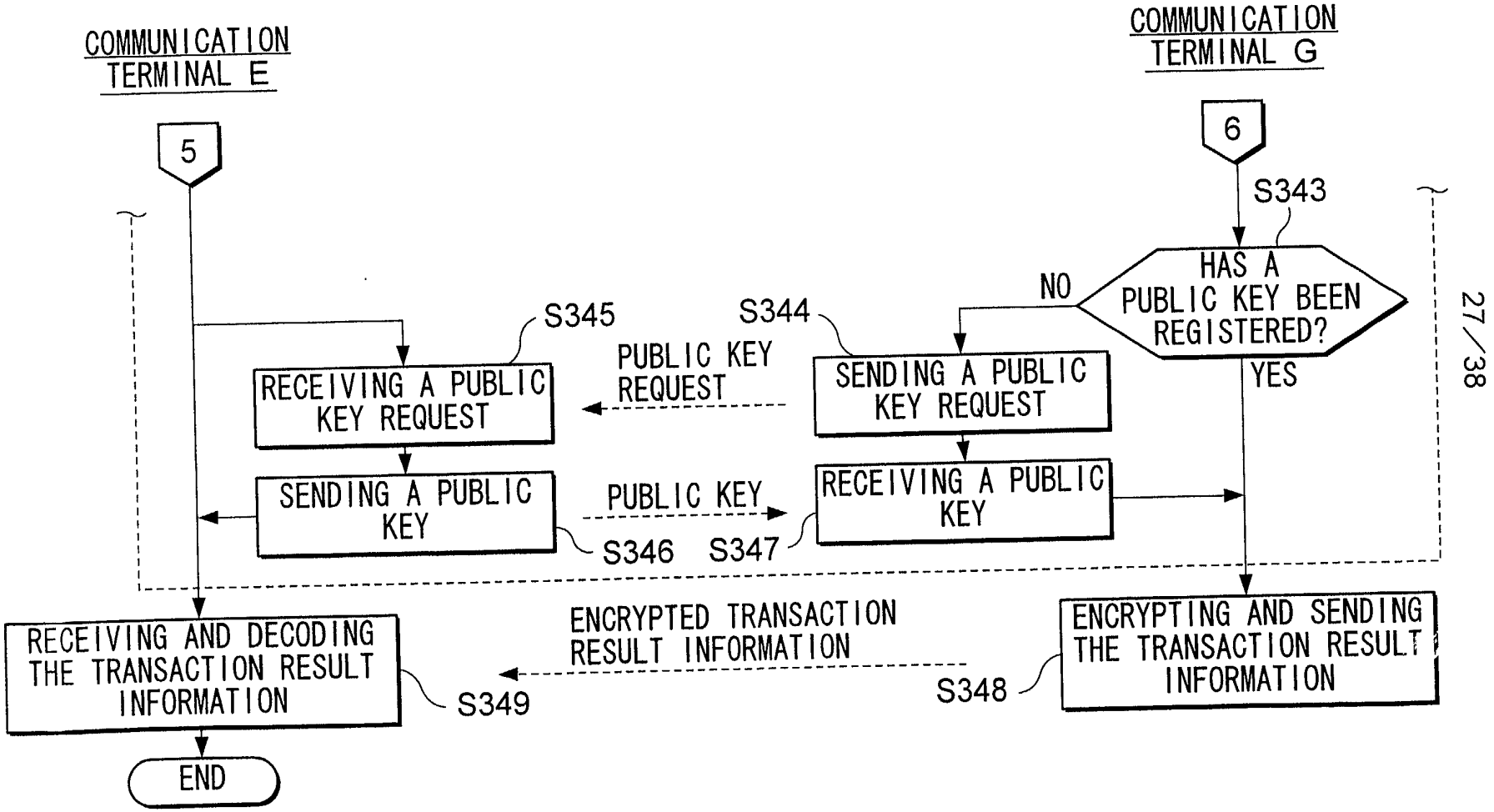
COMMUNICATION TERMINAL E
COMMUNICATION TERMINAL G
5
6
S343
HAS A PUBLIC KEY BEEN REGISTERED?
NO
YES
S344
S345
PUBLIC KEY REQUEST
SENDING A PUBLIC KEY REQUEST
RECEIVING A PUBLIC KEY REQUEST
SENDING A PUBLIC KEY
PUBLIC KEY
RECEIVING A PUBLIC KEY
S346
S347
ENCRYPTED TRANSACTION RESULT INFORMATION
RECEIVING AND DECODING THE TRANSACTION RESULT INFORMATION
ENCRYPTING AND SENDING THE TRANSACTION RESULT INFORMATION
S348
S349
END

FIG. 33

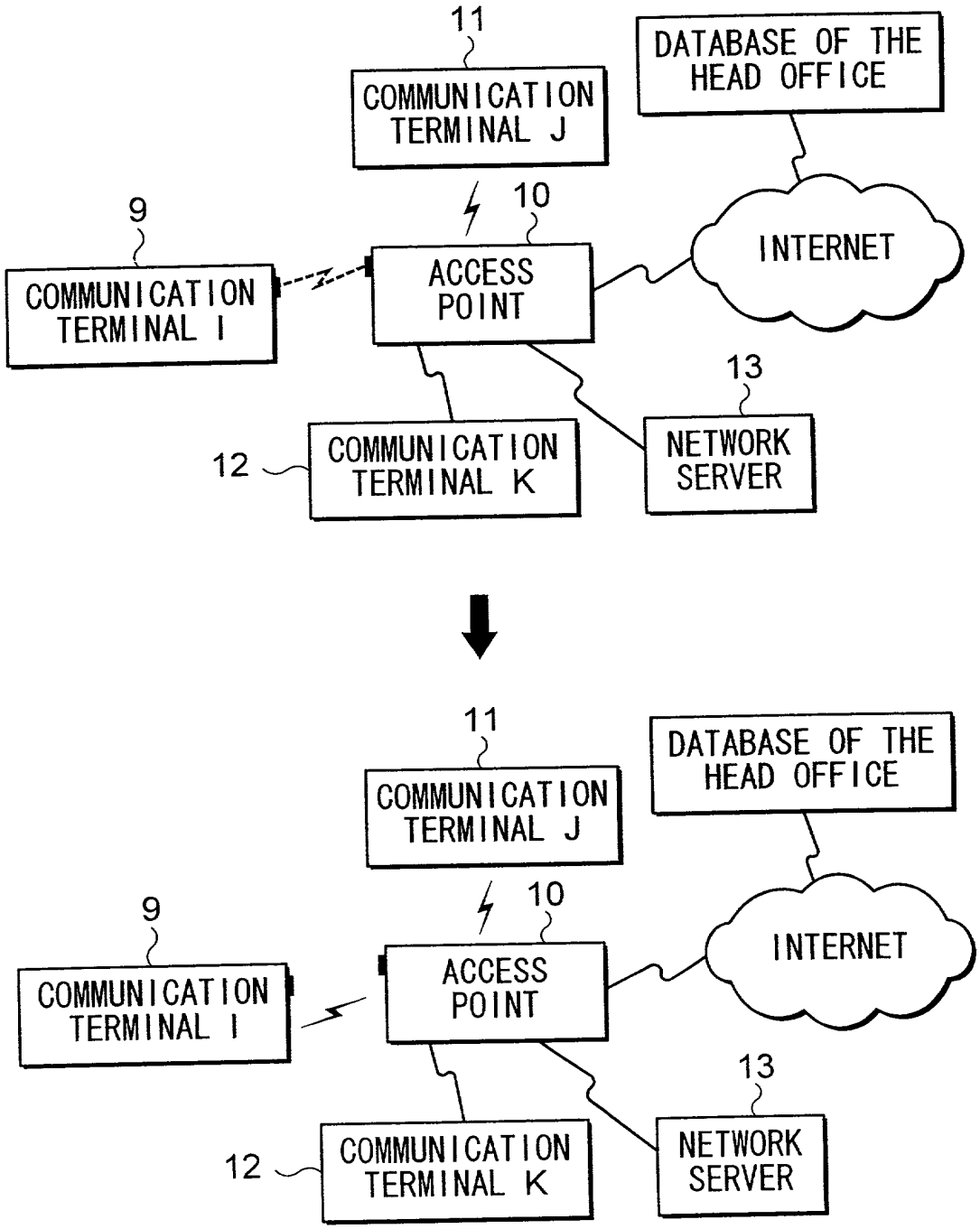


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FIG. 34

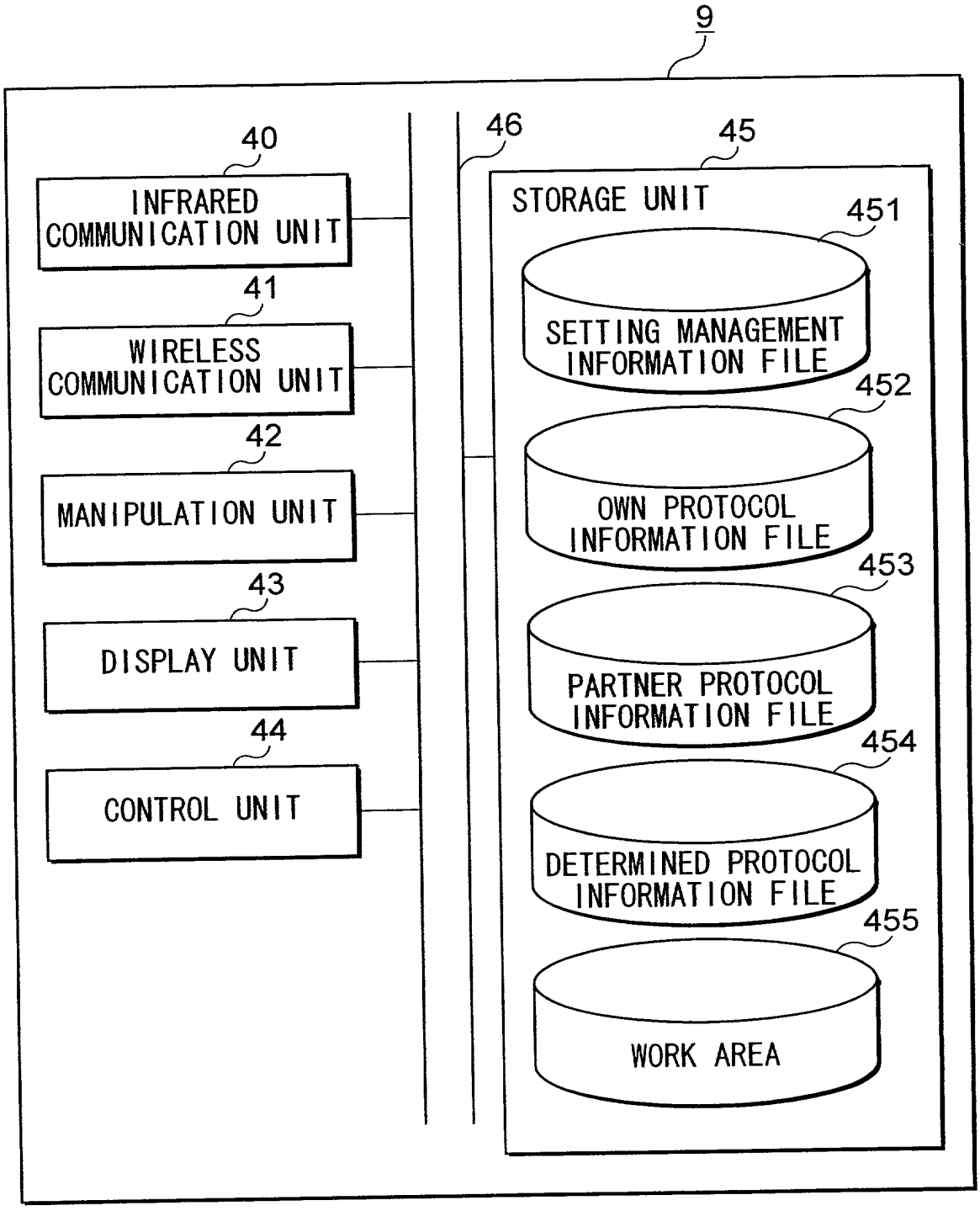
9
40
INFRARED COMMUNICATION UNIT
41
WIRELESS COMMUNICATION UNIT
42
MANIPULATION UNIT
43
DISPLAY UNIT
44
CONTROL UNIT
46
45
STORAGE UNIT
451
SETTING MANAGEMENT INFORMATION FILE
452
OWN PROTOCOL INFORMATION FILE
453
PARTNER PROTOCOL INFORMATION FILE
454
DETERMINED PROTOCOL INFORMATION FILE
455
WORK AREA

FIG. 35

451

| OWN IDENTIFIER | D24F7B85 |
|---|---|
| PASSWORD | &RTQK$Q1 |
| PRIVATE KEY | $8J#FSBNF#YOTM8O3QML$36S |
| PUBLIC KEY | 10TIZ9#0VJ5MCIQGQB1J3Z9B |
| COMMON KEY | #08DVQ763&QKYDA52XHUAO22 |

JP2003-141004-A 2003.05.16

FIG. 36

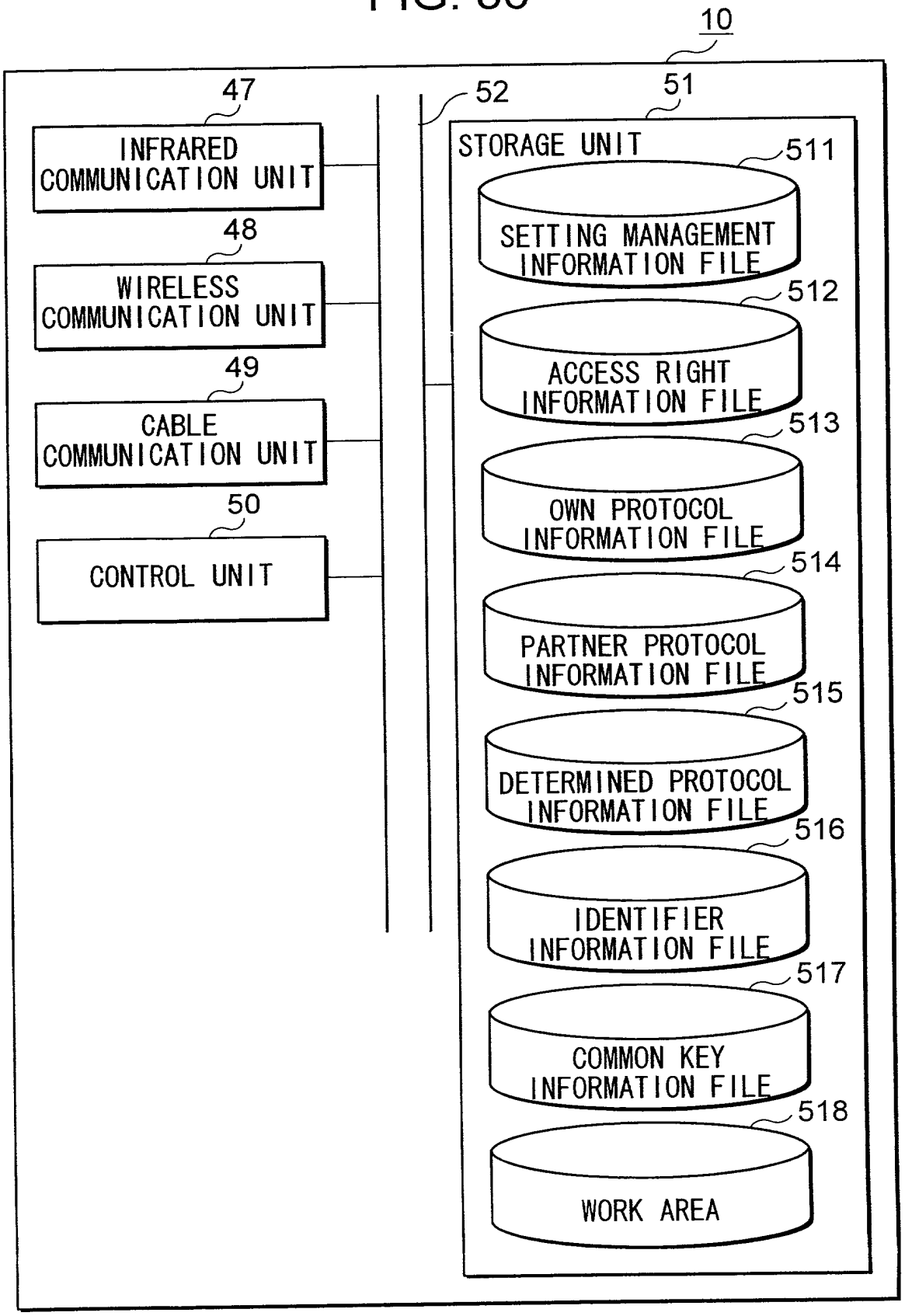
10
47
INFRARED COMMUNICATION UNIT
48
WIRELESS COMMUNICATION UNIT
49
CABLE COMMUNICATION UNIT
50
CONTROL UNIT
52
51
STORAGE UNIT
511
SETTING MANAGEMENT INFORMATION FILE
512
ACCESS RIGHT INFORMATION FILE
513
OWN PROTOCOL INFORMATION FILE
514
PARTNER PROTOCOL INFORMATION FILE
515
DETERMINED PROTOCOL INFORMATION FILE
516
IDENTIFIER INFORMATION FILE
517
COMMON KEY INFORMATION FILE
518
WORK AREA

FIG. 37

511

| PARTNER IDENTIFIER | D24F7B85 |
|---|---|
| PARTNER PUBLIC KEY | 10TIZ9#0VJ5MCIQGQB1J3Z9B |

FIG. 38

512

| IDENTIFIER | ACCOUNT GROUP |
|---|---|
| 8B78BF6A | SAME BRANCH SAME SECTION |
| D24F7B85 | DIFFERENT BRANCH |
| 0C485394 | SAME BRANCH DIFFERENT SECTION |
| ⋮ | ⋮ |

FIG. 39

517

| IDENTIFIER | COMMON KEY |
|---|---|
| 46EB8684 | 2%7607KIMV8L3CW9#UME5Q06 |
| CEAF30D5 | $471T69XRKUD69EXHL%M5NTB |
| D24F7B85 | #08DVQ763&QKYDA52XHUA022 |
| ⋮ | ⋮ |

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FIG. 40

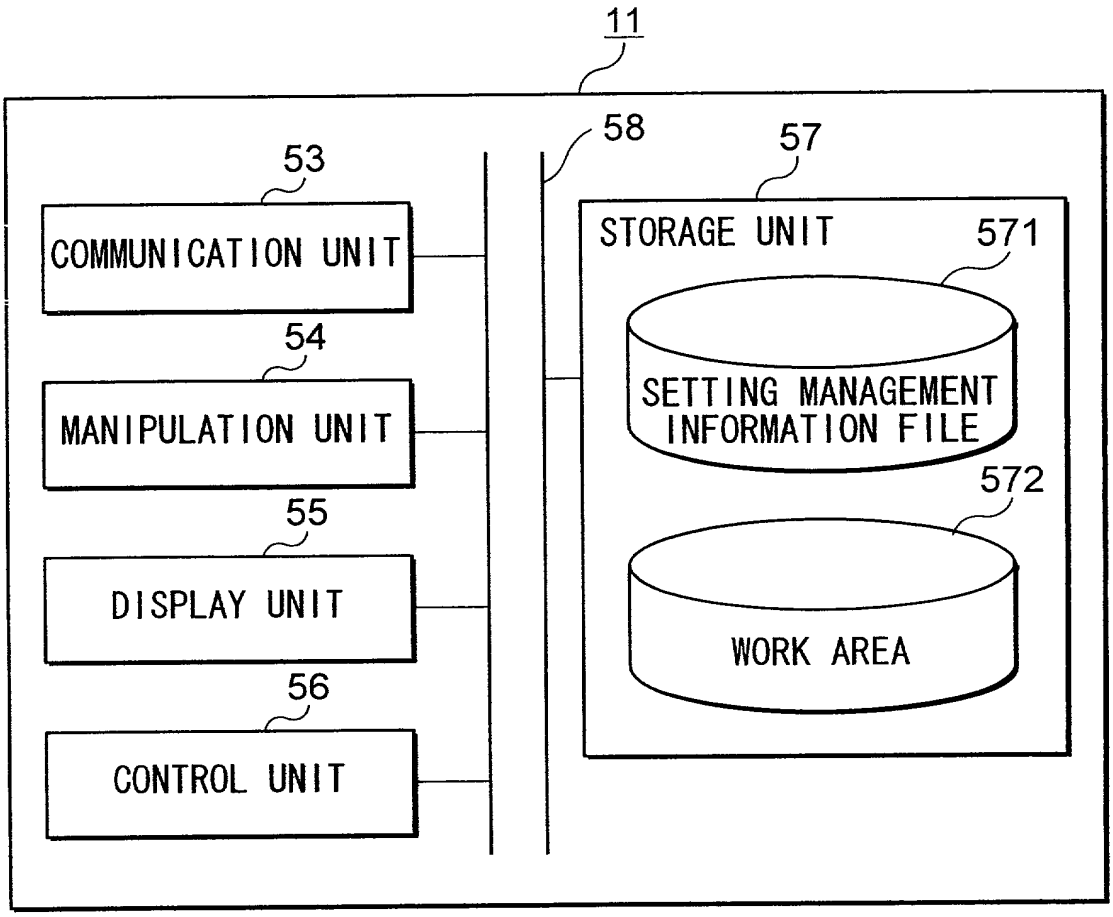



FIG. 41

571

| OWN IDENTIFIER | 46EB8684 |
|---|---|
| COMMON KEY | 2%7607KIMV8L3CW9#UME5Q06 |

FIG. 42

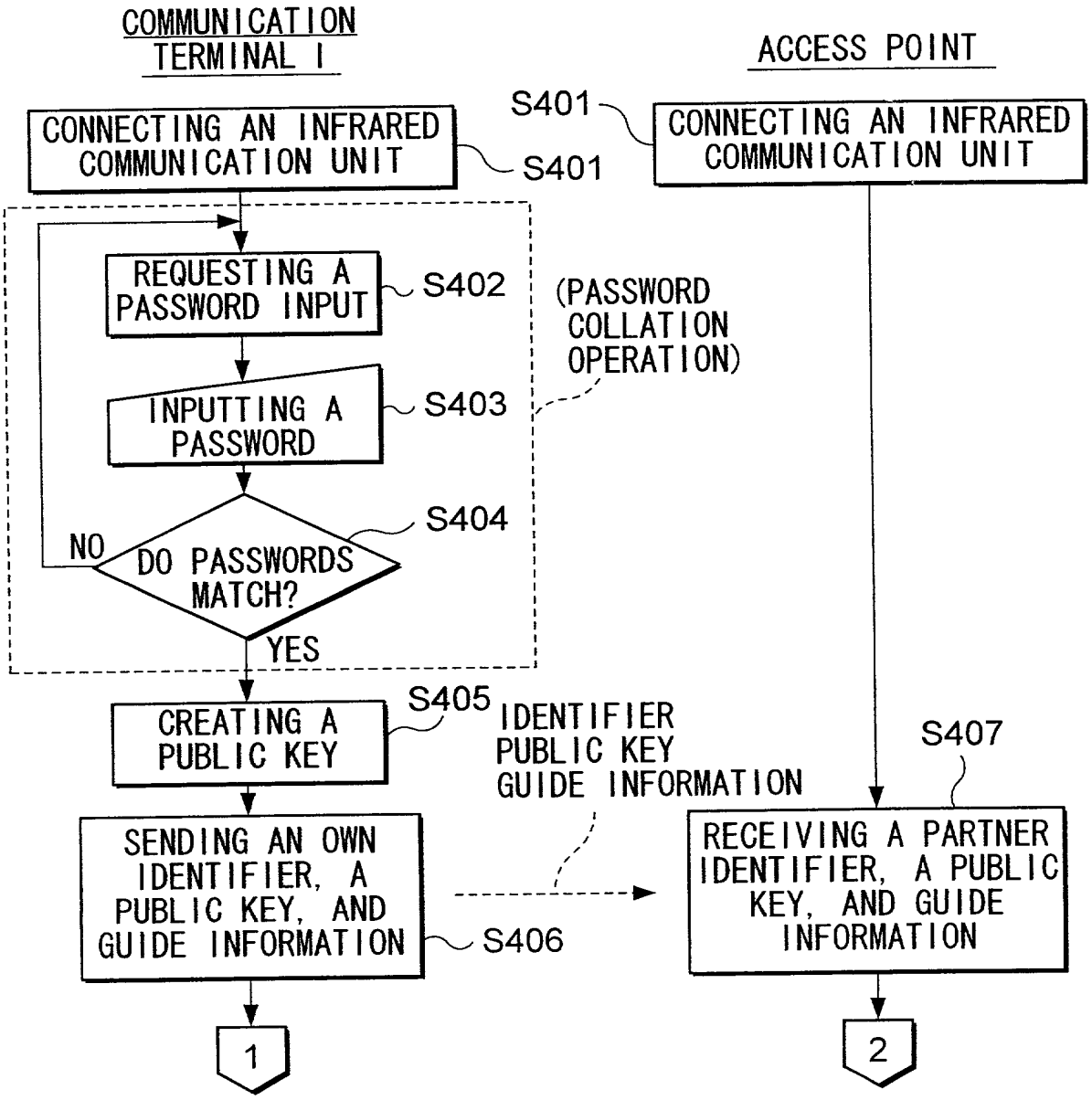

COMMUNICATION TERMINAL I
ACCESS POINT
S401
CONNECTING AN INFRARED COMMUNICATION UNIT
CONNECTING AN INFRARED COMMUNICATION UNIT
S401
REQUESTING A PASSWORD INPUT
S402
(PASSWORD COLLATION OPERATION)
INPUTTING A PASSWORD
S403
S404
NO
DO PASSWORDS MATCH?
YES
S405
CREATING A PUBLIC KEY
IDENTIFIER PUBLIC KEY GUIDE INFORMATION
S407
SENDING AN OWN IDENTIFIER, A PUBLIC KEY, AND GUIDE INFORMATION
S406
RECEIVING A PARTNER IDENTIFIER, A PUBLIC KEY, AND GUIDE INFORMATION
1
2

FIG. 43

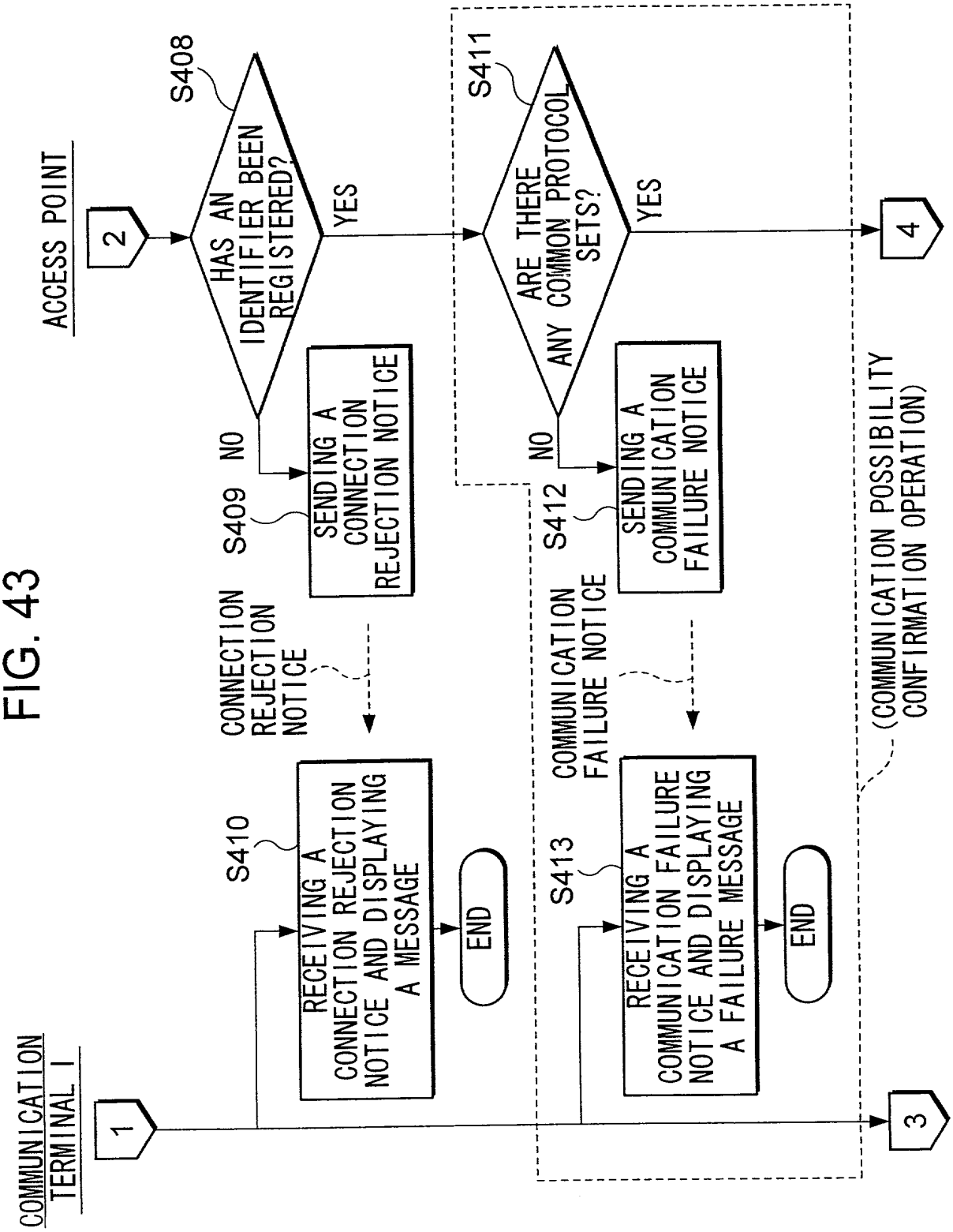

COMMUNICATION TERMINAL I
ACCESS POINT
1
2
3
4
S408
HAS AN IDENTIFIER BEEN REGISTERED?
YES
NO
S409
SENDING A CONNECTION REJECTION NOTICE
CONNECTION REJECTION NOTICE
S410
RECEIVING A CONNECTION REJECTION NOTICE AND DISPLAYING A MESSAGE
END
S411
ARE THERE ANY COMMON PROTOCOL SETS?
YES
NO
S412
SENDING A COMMUNICATION FAILURE NOTICE
COMMUNICATION FAILURE NOTICE
S413
RECEIVING A COMMUNICATION FAILURE NOTICE AND DISPLAYING A FAILURE MESSAGE
END
(COMMUNICATION POSSIBILITY CONFIRMATION OPERATION)

FIG. 44

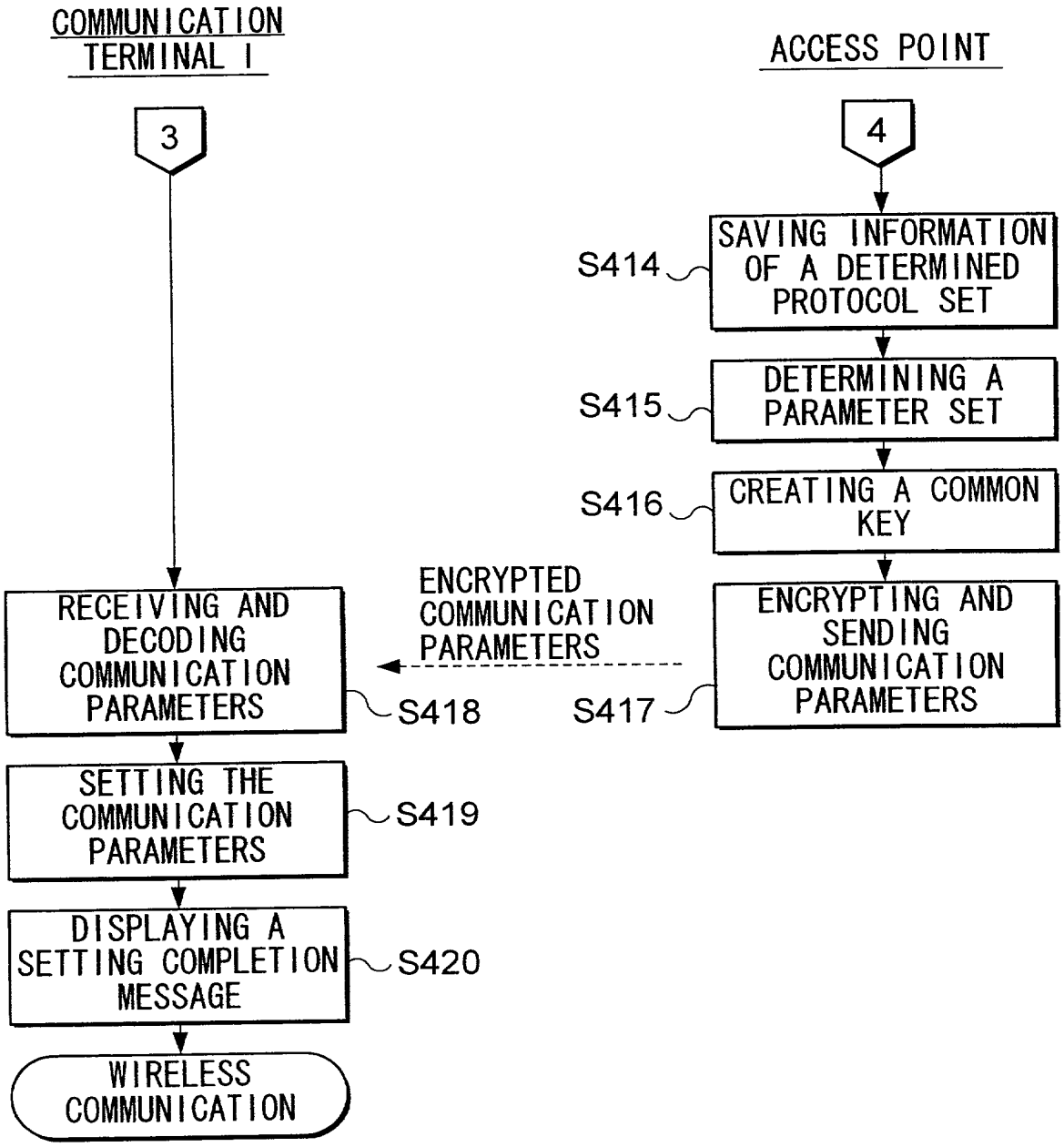

COMMUNICATION TERMINAL I
ACCESS POINT
3
4
SAVING INFORMATION OF A DETERMINED PROTOCOL SET
S414
DETERMINING A PARAMETER SET
S415
CREATING A COMMON KEY
S416
ENCRYPTING AND SENDING COMMUNICATION PARAMETERS
S417
ENCRYPTED COMMUNICATION PARAMETERS
RECEIVING AND DECODING COMMUNICATION PARAMETERS
S418
SETTING THE COMMUNICATION PARAMETERS
S419
DISPLAYING A SETTING COMPLETION MESSAGE
S420
WIRELESS COMMUNICATION

FIG. 45

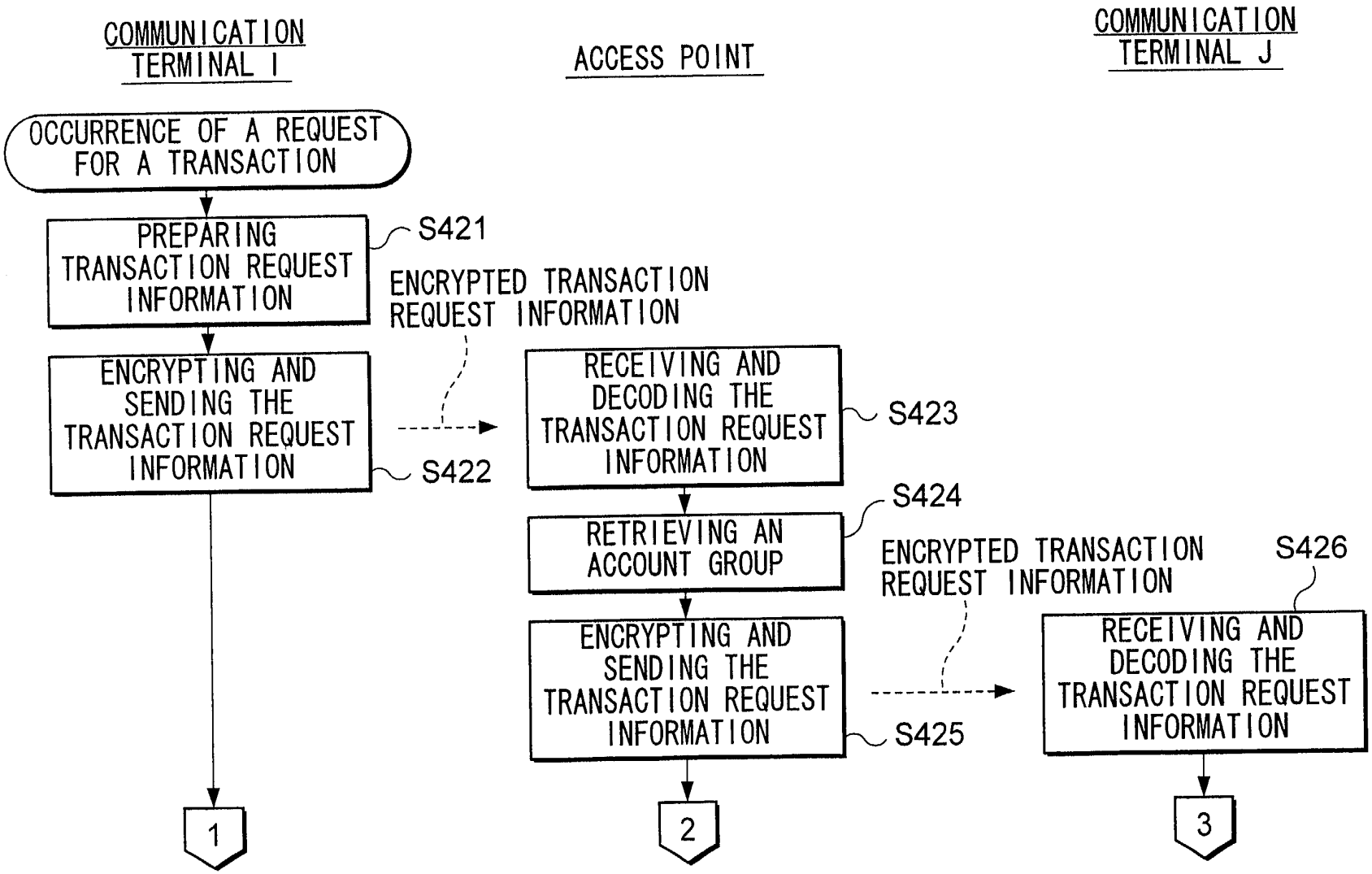
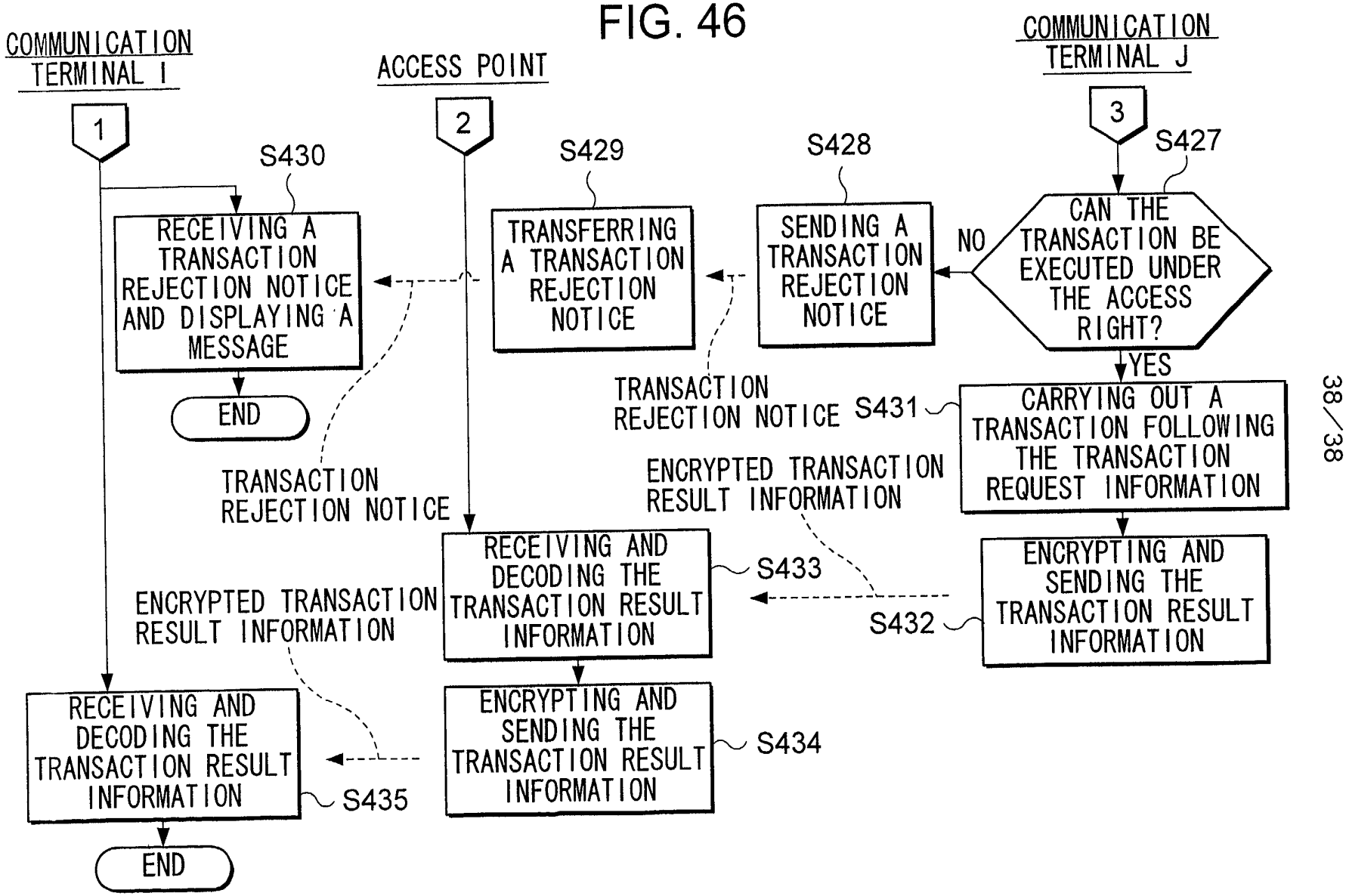

COMMUNICATION TERMINAL I
ACCESS POINT
COMMUNICATION TERMINAL J
OCCURRENCE OF A REQUEST FOR A TRANSACTION
PREPARING TRANSACTION REQUEST INFORMATION
S421
ENCRYPTED TRANSACTION REQUEST INFORMATION
ENCRYPTING AND SENDING THE TRANSACTION REQUEST INFORMATION
S422
RECEIVING AND DECODING THE TRANSACTION REQUEST INFORMATION
S423
RETRIEVING AN ACCOUNT GROUP
S424
ENCRYPTED TRANSACTION REQUEST INFORMATION
S426
ENCRYPTING AND SENDING THE TRANSACTION REQUEST INFORMATION
S425
RECEIVING AND DECODING THE TRANSACTION REQUEST INFORMATION
1
2
3

FIG. 46


COMMUNICATION TERMINAL I
ACCESS POINT
COMMUNICATION TERMINAL J
1
2
3
S427
CAN THE TRANSACTION BE EXECUTED UNDER THE ACCESS RIGHT?
NO
YES
S428
SENDING A TRANSACTION REJECTION NOTICE
S429
TRANSFERRING A TRANSACTION REJECTION NOTICE
S430
RECEIVING A TRANSACTION REJECTION NOTICE AND DISPLAYING A MESSAGE
END
TRANSACTION REJECTION NOTICE
TRANSACTION REJECTION NOTICE
S431
CARRYING OUT A TRANSACTION FOLLOWING THE TRANSACTION REQUEST INFORMATION
ENCRYPTED TRANSACTION RESULT INFORMATION
ENCRYPTING AND SENDING THE TRANSACTION RESULT INFORMATION
S432
RECEIVING AND DECODING THE TRANSACTION RESULT INFORMATION
S433
ENCRYPTED TRANSACTION RESULT INFORMATION
ENCRYPTING AND SENDING THE TRANSACTION RESULT INFORMATION
S434
RECEIVING AND DECODING THE TRANSACTION RESULT INFORMATION
S435
END